

Delivering Dell Standards, simplicity are key to gaining enterprise customers, says Dell President and COO Kevin Rollins. **PAGE 19.**

Junk collectors Web-filtering packages protect and serve corporate resources. **PAGE 30.**

NetworkWorld

The leader in network knowledge ■ www.nwfusion.com

October 27, 2003 ■ Volume 20, Number 43

Technology
INSIDER Mobile computing

Mobile grows up

Mobile computing has progressed beyond simple e-mail to full-blown enterprise apps. Just ask Matt Norce. Two years ago, he gave technicians at his company driving directions on PDAs. Today, the techs are running CRM apps on their handhelds. We explore the potential and the pitfalls on Page 51.

Matt Norce,
network administrator,
J.C. Ehrlich

DAVID MOSER

NEWSPAPER ■ \$5.00

'Net security gets root-level boost

■ BY CAROLYN DUFFY MARSAN AND CARA GARRETSON

A year after surviving a massive distributed denial-of-service attack, the Internet's root servers are better fortified against hacker activity, thanks to behind-the-scenes deployment of a routing technique known as Anycast, experts say.

With Anycast, the root server operators have more than doubled the number of server farms available to handle the highest-level DNS queries. This routing technique heightens root server resilience by multiplying the number of servers with the same IP address and balancing the load across an army of geographically dispersed servers.

A handful of the 13 root server operators have begun deploying Anycast since last year's attack, which didn't succeed in crashing DNS but rendered

“The DNS is more resilient than it was a year ago by a factor of two.”

Paul Mockapetris
DNS inventor, chairman of Nominum



several root servers unavailable for legitimate queries. Experts say the deployment of Anycast is making the entire root-server system more resistant to outage.

“More of the root server operators are doing this
See Root servers, page 14

Double-duty routers give Cisco VoIP edge

■ BY PHIL HOCHMUTH

A recent software upgrade that can turn most Cisco access routers into IP PBXs could provide users with a simple path to follow for converging voice and data networks, and at the same time is causing concern among Cisco's voice-over-IP competitors.

Cisco earlier this month launched CallManager Express — a version of its IOS software that transforms a 1700, 2600 or 3700 series router into a small-

office version of its CallManager IP PBX. While this conversion technology has been deployed in the past as an unannounced feature in IOS, it now has been packaged into a product for offices with fewer than 100 users — the average size for most business IP telephony deployments, analysts say.

Analysts say Cisco routers integrated with IP PBX functions — such as call control, hold, transfer and voice mail — could be a

See Cisco, page 73

■ **Cisco, Brocade to unveil switches at Storage Networking World this week. Page 8.**

C&W ditching ATM, frame customers

■ BY DENISE PAPPALARDO

Cable & Wireless America is getting ready to pull the plug on its U.S. ATM and frame relay backbones, a move that has customers scrambling to find replacement providers and wondering about the future of the carrier's Web hosting and IP services.

The carrier warned domestic ATM and frame users in a letter dated Oct. 14 that they would have to seek an alternative service provider by Dec. 15.

See C&W, page 14

pilot

navigator



IBM recommends Microsoft® Windows® XP Professional for Business.

Warranty Information: For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representation or warranty regarding third-party products or services. *Prices do not include tax or shipping and are subject to change without notice. Reseller prices may vary. †Public access not available in all areas. Access fees may apply. ‡Requires download of client software. †Based on IEEE 802.11b. This wireless LAN product has been designed to permit legal operation worldwide in regions in which it is approved. Operation on channels 12-14 is not permitted in all regulatory regions of the world. Consequently, the wireless LAN feature is limited to operate on channels 1-11 and will not support channels 12, 13 and 14. This product has been tested and certified to be interoperable by the Wireless Ethernet Compatibility Alliance and is authorized to carry the Wi-Fi logo. †For ThinkPad and NetVista models without a separate video card, memory supports both system and video. Accessible system memory may be up to 64MB less than the amount stated, depending on video mode. †GB = 1,000,000,000 bytes when referring to storage capacity. Accessible capacity is less; up to 3GB is used in service partition. †These model numbers achieved eTesting Labs, Inc.'s BatteryMark™ 4.0.1 or the Ziff Davis Media, Inc.'s Business Winstone® 2002 BatteryMark Version 1.0 Battery Rundown Time of at least the time shown. This test was performed without independent verification by the VeriTest testing division of Lionbridge Technologies, Inc. ("VeriTest") or Ziff Davis Media, Inc.; neither Ziff Davis Media, Inc. nor VeriTest makes any representations or warranties as to these test results. Winstone is a registered trademark and BatteryMark is a trademark of Ziff Davis Publishing Holdings, Inc., in the U.S. and other countries. A description of the environment under which the test was performed is available at ibm.com/pc/www/thinkpad/batterylife. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. †Includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay, if applicable; weight may vary due to vendor components, manufacturing process and options. Thinness may vary at certain points on the system. †Some software may differ from its retail version (if available) and may not include user manuals or all program functionality. Software license agreements may apply. †Telephone support may be subject to additional charges. If a machine is listed as having "Onsite service for select repairs" or "Limited onsite service," this means that onsite service is available only for the replacement of select parts. For all other warranty repairs, IBM will provide the customer a replacement part for customer installation. The parts for which onsite service is available varies by machine, but may include the processor, power supply



Take off to parts unknown with an IBM ThinkPad® wireless notebook. The world's easiest way to switch between wired and wireless.

Wherever you want to work, the sky is the limit when you have IBM ThinkPad notebooks with Access Connections software and wireless Intel® Centrino™ mobile technology (on select models). Now it's easier than ever to switch between wired and wireless networks – whether you're at an airport, the office, an Internet café, even your kitchen! So consider the IBM ThinkPad wireless notebook, and experience a whole new level of wireless possibilities. **think freedom**

1 866 723-4971 | ibm.com/shop/m337
Save on shipping. Order online.¹

NEW! IBM ThinkPad T40

Distinctive IBM Innovations:

- Access Connections – easiest wired and wireless connectivity
- IBM Embedded Security Subsystem 2.0²

System Features:

- Intel® Centrino™ mobile technology
 - Intel® Pentium® M processor 1.3GHz supports Enhanced Intel SpeedStep® technology¹²
 - Intel® PRO/Wireless Network Connection 802.11b⁸
- 14.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM std/2GB max¹
- 30GB hard drive³
- Ultrabay™ Slim DVD-ROM
- 5.0-hr battery life⁴ • 4.5-lb travel weight⁵
- Microsoft® Windows® XP Professional⁶
- 1-yr system/battery limited warranty⁷

\$1,549*

■ NavCode 2378D2U-M337

ServicePac® Service Upgrade:¹⁰
3-yr Onsite Repair/9x5/Next Business
Day Response
(#30L9195) ¹¹\$243

NEW! IBM ThinkPad R40

Distinctive IBM Innovations:

- Access Connections – easiest wired and wireless connectivity
- IBM Embedded Security Subsystem 2.0²

System Features:

- Intel® Centrino™ mobile technology
 - Intel® Pentium® M processor 1.3GHz supports Enhanced Intel SpeedStep® technology¹²
 - Intel® PRO/Wireless Network Connection 802.11b⁸
- 14.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM std/1GB max
- 20GB hard drive
- Ultrabay Plus CD-RW/DVD-ROM combo drive
- 6.1-hr battery life⁴ • 5.6-lb travel weight⁵
- Microsoft® Windows® XP Professional⁶
- 1-yr system/battery limited warranty⁷

\$1,299*

■ NavCode 289723U-M337

ServicePac® Service Upgrade:¹⁰
2-yr Onsite Repair/9x5/Next Business
Day Response
(#30L9189) ¹¹\$197

heat sink, system board or base cover. To determine the complete list of parts for which onsite service is available for a particular machine, contact IBM. IBM will attempt to diagnose and resolve any problems remotely before sending a replacement part or technician. ¹⁰These services are available for machines normally used for business, professional or trade purposes, rather than personal, family or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response-time objectives and are not guarantees. A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed. For the 9x5x4-hour service, calls dispatched after 1:00 p.m. local time, you can expect the service technician to arrive by the morning of the next business day. For noncritical service requests, a service technician will arrive by the end of the following business day. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. External peripherals, such as racks, tape drives and channel controllers, require their own, separate service coverage; they are not covered under the attached Machine. Service activation is required immediately following purchase. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. For failing non-IBM components, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer. Service does not cover accessories, supply items and certain parts such as batteries, frames and covers. Standard shipping included when you order online. U.S. only. ¹²With Intel SpeedStep, processor speed may be reduced to conserve battery power. IBM reserves the right to alter product offerings and specifications at any time, without notice. IBM is not responsible for photographic or typographic errors. All IBM product names are registered trademarks or trademarks of International Business Machines Corporation in the U.S. and other countries. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM Company. Intel Inside, the Intel Inside logo, Celeron, Intel Centrino, the Intel Centrino logo and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. © 2003 IBM Corp. All rights reserved.



It's time to turn up the heat
on business telecom. On multiple
carriers. On over-complicated
contracts. Enter XO Communications.
Our only business is business,
whether it's one office or one
hundred. We built one of the nation's
largest Internet backbone networks.
So you can get voice, data, Internet
access, Web hosting and everything
in between. On one bill. From one
financially solid provider. And unlike
other carriers, you get real, live
communication with specially trained
XO™ Customer Care Reps, 24/7.
What will they think of next?



News

- **8 Fibre Channel** vendors to debut **virtualization** wares.
- **8 Veritas** to introduce data protection, life-cycle management offerings.
- **10 Gartner:** IP voice's time is now.
- **10 Red Hat** adds more scalability to Linux.
- **10 MCI** pledges to get mobile.
- **12 Microsoft Office** takes over collaboration reins.
- **13 Database vendor** provides integration with a twist.
- **16 Net execs** talk about why they're **bullish on outsourcing**.

Infrastructure

- **19 Dell exec:** Standards, simplicity are key.
- **19 Avaya suite** extends call center applications.
- **22 Kevin Tolly:** Orchestrate your LAN.

Enterprise Applications

- **25 IP network management** could get easier.
- **25 Start-up** takes sign-on tasks out of users' hands.
- **28 Fujitsu Siemens, Oracle team** on middleware.
- **28 Scott Bradner:** What are regulators good for?
- **30 Special Focus:** Web-filtering packages protect and serve.

Service Providers

- **33 Head of AT&T business sales** talks turkey.
- **33 Cisco** enhances Multi-protocol Label Switching software for Layer 2.
- **36 Johna Till Johnson:** This time merger activity isn't madness.

Net.Worker

- **41 Review:** Adventures in broadband video.

Technology Update

- **43 Object storage** ensures high scalability.
- **43 Steve Blass:** Ask Dr. Internet.
- **44 Mark Gibbs:** Mind that mind map!
- **44 Keith Shaw:** Cool tools, gizmos and other neat stuff.

Opinions

- **46 Editorial:** IDS has a role when done right.
- **47 Ken Presti:** Cut-rate integration: The downside.
- **47 Thomas Nolle:** Content craze threatens net performance.
- **74 BackSpin:** Processes and improbabilities.
- **74 'Net Buzz:** Numbers show why VeriSign loves SiteFinder.

Management Strategies

- **60 Power to the people:** Network executives get bright ideas by associating with IT user groups targeted at their specific industries.
- **69 Career classifieds.**



Page 60

ALEX NABAUM

Technology

INSIDER Mobile computing

Mobile deployment: Users at a pest-control company bugged network administrator Matt Norce, right, to load their PDAs with enterprise applications. **Page 51.**

Catching criminals: San Mateo cops tap a Wi-Fi hot zone to dig into databases and dispatches. **Page 54.**

Feature

Tester's Choice: A kinder, gentler Joel Snyder. **Page 58.**

NetworkWorldFusion

www.nwfusion.com

Interactive

Most popular downloads

From ActiveSNMP to Observer, see which free tools are the most sought-after on Fusion. **DocFinder: 7840**

News the way you want it

Track just the technologies, companies and authors you're interested in — we have more than 60 different RSS feeds. **DocFinder: 7442**

Seminars and events

What will 2004 hold for Gigabit Ethernet?

Get fresh intelligence from LAN experts. New ideas and better options for LAN effectiveness. The latest in tech and trends. Attend LANs: Orchestrating Your Network Assets. Set your agenda for 2004 so you can orchestrate your assets for success now. Click, qualify and attend — for free. **DocFinder: 8245**

Breaking News

Exclusive up-to-date news every day. **DocFinder: 6342**

Free e-mail newsletters

Sign up for any free e-mail newsletter. **DocFinder: 6343**

■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 12 for more contact information. **REPRINTS:** (717) 399-1900

SUBSCRIPTIONS/CHANGE OF ADDRESS: Phone: (508) 490-6444; Fax: (508) 490-6400; E-mail: nwcirc@nww.com; URL: www.subscribenw.com

Columnists

Compendium

Remember the script kiddies Fusion Executive Editor Adam Gaffin says forget the fancy-shmancy security systems: Until you do the basics first, your network will still be vulnerable. **DocFinder: 8240**

Wireless Wizards

Channel overlap The Wireless Wizards help Scott figure out why, on an 802.11b access point with 11 channels, only three are non-overlapping. **DocFinder: 8241**

Telework Beat

Teaching companies new tricks, Part Two Net.Worker Managing Editor Toni Kistner says the EPA is using the media and training to spur commuter benefits programs. **DocFinder: 8242**

Small Business Tech

Best back-up strategies Columnist James Gaskin advises how to choose the right data back-up system for your business. **DocFinder: 8243**

Digital Domicile

The world according to 2Wire Columnist Mike Wolf says a recent 2Wire customer study reveals some surprises about home networks, gateways and wireless. **DocFinder: 8244**

What is DocFinder?

We've made it easy to access articles and resources online. Simply enter the four-digit DocFinder number in the search box on the home page, and you'll jump directly to the requested information.

News

Bits

Senate passes CAN-SPAM bill

■ The Senate last week passed the Controlling the Assault of Non-Solicited Pornography and Marketing (CAN-SPAM) bill, designed to regulate unsolicited commercial e-mail. CAN-SPAM requires commercial e-mail to include valid opt-out mechanisms and allows fines of up to \$100 per piece of spam sent with misleading header information, with maximum penalties of \$3 million for some types of spam and prison sentences for certain spamming practices. The bill also requires the Federal Trade Commission to deliver to Congress a plan to create a national do-not-spam registry within six months and authorize the FTC to launch it within nine months of the bill's passage. CAN-SPAM would have to be approved by the House of Representatives and signed by President Bush. No anti-spam bill has yet been approved by a committee in the U.S. House. Critics of CAN-SPAM say its provisions requiring consumers to opt out of unsolicited e-mail instead of opting in to commercial e-mail make it a pro-spam, not an anti-spam, bill.

SCO license only for big fish

■ Any company not among the country's 1,000 largest is out of luck if it's interested in getting a license from The SCO Group to protect itself from possible litigation. SCO spokesman Blake Stowell says smaller companies should still contact SCO about buying a license in the future to lock in at a discounted price, "but for right now, we're only selling to the Fortune 1000. We would rather spend a few days in the sales cycle selling to one large company in a big license deal than spend several months dealing with every individual company, large and small, to gain the same amount of revenue," he says. SCO rolled out the SCO Intellectual Property License for Linux in August as a way for companies to protect themselves from what SCO says are intellectual property violations in Linux. The license is \$699 per one processor server and will jump to \$1,400 on Nov. 1.

Google reportedly going public

■ Internet search leader Google could go public early next year and is considering holding a huge online auction of its shares, according to a report published last week. The *Financial Times* said in its online edition that Google executives met with investment bankers to gauge their interest in an IPO of stock. A decision by the search giant to go public is expected to create excitement among investors, and the company could be valued at between \$15 billion and \$25 billion, experts say. Furthermore, Google reportedly is considering an online auction of its shares, which would prevent prices being set by an investment bank. Since its inception in 1998, Google has taken the online search market by

COMPENDIUM

When time travelers send spam

A Massachusetts man is not real happy with a semi-famous spammer who's been sending out requests for parts for his inter-dimensional warp generator. Seems the spammer forged the guy's domain name in his message headers last week, causing, at last count, more than 350,000 bounced messages. Read more at www.nwfusion.com, DocFinder: 8250.

■ TheGoodTheBadTheUgly



Can you dig it? The FCC has approved use of spectrum in the 71- to 76-GHz band, 81- to 86-GHz band and 92- to 95-GHz band, a move that could pave the way for new broadband services without requiring carriers to dig up pavement to lay fiber-optic cables. The narrow-beam technology that could exploit the newly available spectrum could be used to deliver point-to-point wireless LANs.



AT&T humbled. AT&T, one of the biggest critics of the WorldCom (now MCI) accounting mess, last week 'fessed up that it understated expenses by \$125 million in 2001 and 2002 and overstated net income by \$77 million as a result.



Horrer story. CIO John Halamka of CareGroup and Beth Israel Deaconess Medical Center in Boston tells the IDG News Service that a combination of firewall, network intrusion-detection systems, anti-virus software and patches worked to keep his facilities worm-free during a rash of attacks in recent months. Still, Halamka said his IT staff had to hold what he called an "all nightmare-athon" patching session in late July for the hospital's 130 Windows servers.



storm and now claims to process more than 200 million queries a day. Google also has racked up deals with other major Internet players such as AOL and Amazon.com. Company representatives were not immediately available to comment.

Qwest, AT&T in legal battle over fees

■ Qwest last week sued AT&T, alleging inaccurate billing of toll-free calls routed across the Qwest network. Qwest is seeking to recoup fees from AT&T lost to under-billing based on an inaccurate AT&T database of toll-free calls using Qwest's network. Qwest says that the under-billing amounted to \$15 million to \$20 million annually. AT&T denies the allegations in Qwest's lawsuit. "In the normal course of our ongoing business arrangements with Qwest, this is a contract and billing dispute that we have been working to resolve for more than the past 16 months," an AT&T spokesperson said. "We will file a formal reply to the complaint in U.S. District Court at the appropriate time." Qwest says AT&T stopped updating the toll-free number database over three years ago and informed Qwest of this last year. New toll-free numbers routed through the Qwest network since March 2000 were billed incorrectly at a lower access rate, she said.

FREE!

Register for new Foundry Networks Enterprise and Server Load Balancing Free Half-Day Seminars, details at <http://www.foundrynet.com/seminars/converge>

ACT NOW!

Buy a FastIron Edge 9604 Switch and receive a \$1,000* instant discount plus Free Layer 3 Upgrade. <http://www.foundrynet.com/fes/>

THE FASTIRON EDGE FAMILY

QOS AND TRAFFIC MANAGEMENT

- IEEE 802.1P, IETF DIFFSERV/TOS
- PRIORITY QUEUING
- LOW LATENCY

IRONWARE SWITCHING AND ROUTING

- 802.1Q, PORT AND PROTOCOL VLANS
- 802.1Q-IN-Q ENCAPSULATION
- 802.1W RAPID SPANNING TREE
- UPGRADEABLE TO MULTIPROTOCOL AND MULTICAST ROUTING

POWER OVER ETHERNET

- IEEE 802.3AF COMPLIANT
- 15 WATTS OF POWER STANDARD ON EVERY PORT FOR POE SCALABILITY
- CONNECTIVITY FOR 802.11 ACCESS POINTS, IP TELEPHONES, IP VIDEO CAMERAS

INTEGRATED sFLOW TRAFFIC MONITORING

- INDUSTRY STANDARD (RFC 3176)
- RAPID TROUBLE DETECTION AND RESOLUTION
- WIRE-SPEED PERFORMANCE
- COMPLETE NETWORK TRAFFIC VISIBILITY

IRONSHIELD® SECURITY

- IEEE 802.1X ACCESS CONTROL
- EXTENDED AND DYNAMIC ACCESS CONTROL LISTS

HIGH-DENSITY, SCALABLE, AND RELIABLE

- 24-PORT, 48-PORT, AND 96-PORT 10/100 SWITCH, WITH GIGABIT UPLINKS
- 12-PORT COMBO GIGABIT SWITCH
- FIBER AND COPPER MEDIA FLEXIBILITY
- REDUNDANT AND HOT-SWAPPABLE AC AND DC POWER
- SOFTWARE AND HARDWARE RESILIENCE

YOUR COMPETITIVE EDGE.

FastIron Edge® Switches let you do more with less. This series of high-density Layer 2/3 switches, including the world's first 96-port 10/100 plus 4 Gigabit uplink switch, delivers the features of a chassis-based switch in a form factor designed for environments where space is limited and reliability is key. Featuring hot-swappable, redundant power supplies, standards-based network management, a common user interface, and the time-proven IronWare™ software suite, these switches provide a powerful, easy-to-use, and reliable edge solution. Power over Ethernet and flexible access control features make these switches the ideal solution for network convergence. Give your network a competitive edge—get a FastIron Edge Switch. Call 1.888.TURBOLAN (1.888.887.2652) or visit www.foundrynetworks.com/fes/.



**FOUNDRY
NETWORKS**

The Power of Performance

*Offer expressed in U.S. dollars.

© 2004 Foundry Networks, Inc. All rights reserved. Foundry Networks and the Foundry Networks logo are trademarks of Foundry Networks, Inc.

Virtualization on tap from Brocade, Cisco

■ BY DENI CONNOR

Virtualization of storage resources will be a focus of Storage Networking World this week as Brocade Communications and

Cisco introduce Fibre Channel switches that let customers simplify management through applications that pool, replicate and back up data.

Brocade is expected to demon-

strate replication, data migration and virtual tape back-up capability for its Silkworm Fabric Application Platform AP7420 Fibre Channel switch and increased functionality for its Silkworm 12000 director-level switch. Cisco and IBM will show off a new product bundle consisting of the Cisco MDS 9000 MultiLayer Intelligent SAN director running IBM's TotalStorage SAN Volume Controller virtualization software.

Customers are applauding the move toward virtualization.

"Virtualization provides us the ability to manage multiple devices from one interface," says Jay Morgan, storage manager for Safe-Lite AutoGlass in Columbus, Ohio, which is testing virtualization on a Cisco MDS 9000 switch. "It also lets us manage the storage from multiple vendors, and add and manage cheap, capacity-oriented drives or tape drives in the same environment. We plan on using virtualization to do virtual tape and replication."

Previously, applications such as virtualization, replication and volume management ran on host computers or arrays where their ability to manage all the servers and storage devices on the storage-area network (SAN) was limited to certain vendors' storage devices or operating systems.

Vendors such as Falconstor and DataCore have appliances that attach to the Fibre Channel fabric to host these applications and manage a variety of server operating systems and storage gear. At the show, vendors such as Brocade, Cisco and McData are expected to follow through on their promise of technology that lets applications be placed on the Fibre Channel switch, where they can manage all the servers and storage connected to them and not introduce new hardware into the fabric.

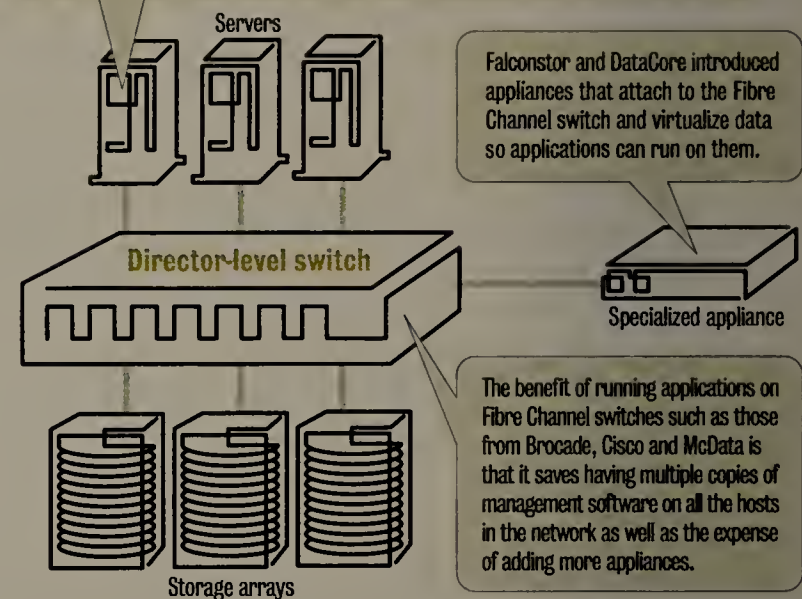
Brocade is scheduled to demonstrate replication capability for its 16-port Silkworm Fabric Application Platform AP7420 switch using software from start-up Kashya. The technology, which the company says will be available next year, automatically performs replication and recovery of data based on policies set regarding the size of the pipe and the amount of latency allowed. The technology also will be introduced as a module for the Silkworm 12000 in the first half of 2004.

Brocade is expected to show off

Intelligent Fibre Channel switches debut

Brocade, Cisco and McData switches now can run applications that virtualize the storage resources of a network and then replicate, back up, manage or provision data.

Previously, applications were installed on servers and were able to manage only a specific group of other servers or storage systems. They also were installed on storage systems where the same was true — they were able to manage only certain operating systems or storage systems.



data migration services from start-up Incipient running on the AP7420, which lets users migrate data between different storage systems without disrupting it.

Brocade also will demonstrate the capability of its Silkworm Fabric Application Platform AP7420 hardware to perform backups to a virtualized group of RAID arrays and Just a Bunch of Disks instead of to tape, using software from start-up Alacritus.

The company also is set to introduce an option for replication over any distance using CNT's UltraNet Edge Storage Router, which allows remote Fibre Channel or Fibre Connection disk mirroring and storage-area network (SAN) interconnection over IP, ATM or SONET networks.

It also is expected to announce as soon as next week new circuitry for its Silkworm 12000 director-level switch that simplifies its management capability. Current Silkworm 12000s are split into two management domains, each consisting of 64 ports. The new circuitry will let all 128 ports be included in the same domain.

Gary Pilafas, senior storage/systems architect for United Airlines Loyalty Services in Chicago, is looking forward to using Brocade's single-domain Silkworm 12000.

"When Brocade introduces its single-domain 12000, I'm going to [convert my switches] to that," Pilafas says. "I can then have one

domain with 128 ports. Today I have to have two domains for each Silkworm 12000 switch logically and do trunking from Side A to Side B. With two domains in the switch, you have to have trunks and you lose four ports on each side. At \$2,000 per port, that's \$16,000 I'll save."

The company also is expected to introduce a 256-port director-level switch by year-end.

Cisco's and IBM's package lets users administer applications such as point-in-time copy, replication or volume management across a heterogeneous SAN from an MDS 9000 director-level switch.

Using the package, IT administrators will be able to pool the data on disparate storage systems into logical pools, where further management or provisioning can take place without taking any of the servers or storage offline. Cisco has developed a Caching Services Module that hosts the SAN Volume Controller software. This module, which has 8G bytes of memory and is hot-swappable and redundant, fits in the Cisco MDS 9500 directors or the MDS 9216 fabric switch. It replaces the SAN Volume Controller running on an IBM eServer xSeries server introduced earlier this year. The IBM SAN Volume Controller for Cisco MDS 9000, which consists of two Caching Services Modules and software, is expected to be available in December for \$112,000. ■

Veritas readying storage mgmt. splash

■ BY DENI CONNOR

Veritas Software is expected to boost its data-protection and life-cycle management offerings next week with a set of new and enhanced software products designed to help users more efficiently manage storage networks.

According to sources, the company is expected to introduce:

- A Web-based portal called CommandCentral, for managing all Veritas applications running on the storage network.
- A new version of its enterprise data back-up and recovery application, NetBackup.
- A new version of its Data Migrator product, which has been re-branded Data Lifecycle Manager.
- A desktop and laptop back-up package.
- Enhancements to Backup Exec, its product for backing up Windows and NetWare servers.

Data protection, recovery and life-cycle management software lets users better manage, migrate, archive and retrieve the data created on their networks.

CommandCentral lets customers globally view storage resource operations, report on storage processes and accurately calculate infrastructure costs for chargeback or budget allocation.

"The benefit I am trying to get out of [a package such as CommandCentral] is that it reduces my license and maintenance cost for software by being heterogenous across more products like NetBackup and Backup Exec," says Barry Brazil, enterprise SAN architect for Reliant Energy in Houston. "I use a lot of both products, and today I can't manage them from a single console. With CommandCentral, if I can manage my backups through a single source, it saves me a tremendous amount of time and management headaches."

Veritas also is expected to unveil a version of its back-up and recovery software. NetBackup 5.0 will focus on letting users back up data to disk and tape, and stage backups to disk for a period of time before moving them to tape, allowing faster restores. NetBackup 5.0 also will feature enhanced Windows snapshot support and enable non-disruptive upgrades. In addition, NetBackup users will be able to perform bare metal restorations of data to drives that don't contain an operating system. It also will synchronize laptop and desktop back-up and restore operations with their server backups.

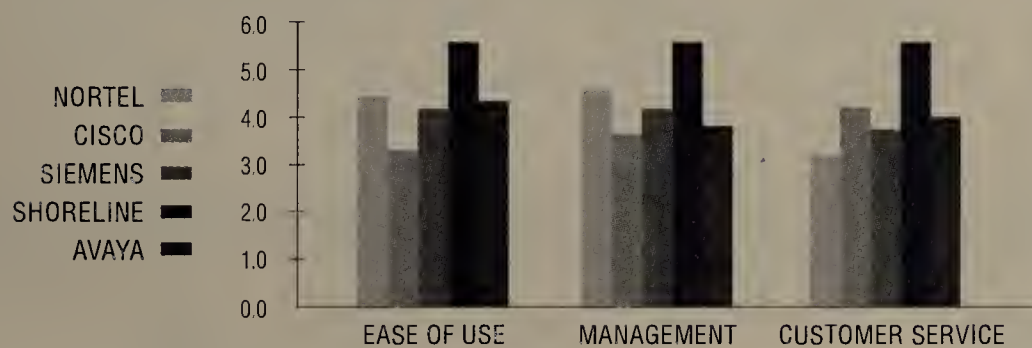
Also, the product will include new Active Directory-compatible access control features that will let profiles for different users be created. Among the other features of NetBackup is the ability to restart a file system from before the point of failure on Unix and Windows servers.

The company also will introduce enhancements to its Data Migrator product, which ensures that only frequently used information is kept permanently on online media, while infrequently needed data is migrated automatically from online devices to lower-cost secondary storage such as optical disk or tape. This product, which has been renamed Data Lifecycle Manager, now will include rules administrators can set that affect where data is stored, how it is migrated and when it is archived to tape.

Further, the company will announce enhancements to Backup Exec, its product for protecting Windows and NetWare servers. Last week, the company announced a new option for Backup Exec called the Veritas Desktop and Laptop Option, which works with Backup Exec to let administrators back up their users' desktop and laptop computers. ■

siemens nortel avaya **shoreline** cisco

The IP PBX company rated #1 by IT professionals...



*Nemertes Research, Implementing IP Telephony Report, July 2003
This report was not commissioned by Shoreline, nor was it sponsored by Shoreline.
It is an independent study

It's Shoreline.

In a new Nemertes Research study, Shoreline dominated. It was the only company reviewed that specializes in IP PBX systems for the enterprise.

#1 in every category.

Shoreline was rated #1 for system ease of use, manageability, performance, technology, cost effectiveness AND customer service. Rated #1 for delivering just what you want.



You'll get an IP PBX solution that's easy to install and manage, specifically designed for IP Telephony from the start. With a single-system view and the ability to run your entire multi-site network, it is the solution that can make your people more productive... the solution judged #1 by the IT professionals who have experience installing IP PBXs.

For your free copy of the Nemertes Research executive summary, visit our web site at <http://networld.goshoreline.com> or call 1-877-80SHORE.

Capellas says MCI to stress wireless

■ BY DENISE PAPPALARDO

ORLANDO — MCI CEO Michael Capellas used last week's Gartner Symposium/ITxpo to preview what's next for the embattled carrier, assuming it leaps what might be its final hurdle before emerging from bankruptcy protection.

This week, the federal bankruptcy court in the Southern District of New York is expected to hold a hearing to confirm MCI's reorganization plan.

While it's not known how long the judge will deliberate when the hearing concludes, it's possible that MCI might begin 2004 free and clear.

If that's the case, expect to hear a lot from MCI on the mobility and convergence fronts. But don't expect MCI to build its own wireless network, given that there are six national wireless service providers already operating.

"Will you see us be pretty aggressive in partnering in the wireless space? You bet," Capellas said.

MCI could team with wireless carriers such as Cingular Wireless, Nextel Communications and T-Mobile that could use MCI to provide the local, long-distance or Internet access pieces to a well-rounded service bundle.

MCI exited the wireless wholesale services market soon after it filed for bankruptcy protection in the summer of 2002 and also sold off its local fixed wireless network. Its paging business is on the auction block.

Capellas also said customers can expect to see more converged voice and data services from MCI. Even through bankruptcy the carrier played up its MCI Advantage services that support voice and data over a single Internet access line. ■



MCI CEO Michael Capellas remains confident on prospects for quick, successful emergence from bankruptcy.

Gartner: Time is now for VoIP

PBXs starting to make the long trek toward obsolescence.

■ BY TIM GREENE

ORLANDO — Bringing voice over IP into corporate networks is inevitable, so businesses should be well on their way to at least testing the technology, according to Gartner.

This year, for the first time, sales of communications servers that support IP are expected to exceed sales of traditional PBXs that don't, Gartner analysts said last week at the company's annual Symposium/ITxpo. And by 2006 sales of traditional PBXs will be relatively insignificant, they said.

With that shift, IT departments should have IP voice gear running in pockets in their networks, even if their companies have no firm plans to adopt it, users say.

"I think it would be foolish not to have that option," says James Lieupo, network administrator for Florida's Department of Veterans Affairs. Lieupo has installed Avaya Software's IP-capable voice gear in the department's six nursing homes.

Even though they are performing as traditional TDM key systems, IP voice is coming, he says.

He is looking to run IP voice on the state data network as a cost-cutting measure. Also, the state is seeking bids for its voice backbone, and he predicts that some of the proposals will include IP services.

Similarly, Watkins Motor Lines in Lakeland, Fla., started experimenting with Cisco IP phones two years ago to become familiar with the technology, says Dave Lichtel, the com-

pany's telecom director. Now it has bought Cisco Call Center gear to replace aging PBX equipment. The company plans to use the gear to expand its help desk and call center functionality by integrating phone calls with on-screen data displays about callers. The cost of going with IP vs. TDM was about a wash.

The IP gear also can streamline the company's interactive voice response (IVR) and Web-based shipment-tracking systems. Callers with the old IVR can find the whereabouts of their shipments over the phone, and they can get the same information on a Web page. But with IP voice, the data can be stored on one server, Lichtel says.

The company is a Cisco shop, and its routers include IP voice features imbedded in IOS that will pave the way to an eventual company-wide IP telephony rollout. "It's something we will exploit in the future," he says.

The IS director for a major hardware chain, who asked not to be identified, says the company is looking into IP telephony via trials, and is attracted by potential cost savings. But, he says, with more than 1,000 stores, he has to be convinced the technology can handle such a large deployment reliably.

Gartner told attendees that IP telephony is

ready for deployment technologically, but business concerns might override making the shift in some companies. The cost of the phones is a major issue.

"The cost of replacement telephones alone is reason enough to delay conversion of all desktops," said Jeff Snyder, a Gartner research vice president. "Network readiness, voice security and policy/[quality of service] rule management add further costs to conversion, and require additional planning as well."

Snyder said most corporate IP data networks that are more than 3 years old will need to be upgraded if

the company wants to run high-quality voice over it. That is the key issue Lieupo wants to come to an agreement with Florida's state SunCom data network before he tries passing voice traffic over it. If he gets the OK, he says he can save money. "I'm already paying for [the data network]. I'll have to see what the state will allow," he said.

Snyder cited three key reasons why businesses should shift to IP voice now:

- Old PBXs are being replaced anyway.
- The company is moving to a new building and budget is available for the change.
- IP voice offers business advantages that warrant the investment. ■

Taking the inside lane

The number of IP-capable voice systems sold in North America will surpass the number of pure, traditional phone systems by year-end, 160,000 to 110,000, Gartner says.

Red Hat enhances scalability of Linux OS

■ BY JENNIFER MEARS

Red Hat has rolled out a beefed-up version of its Linux operating system with better scalability, improved performance and support for a wider range of hardware platforms.

Enterprise Linux 3, released last week, includes a threading technology called Native Posix Threading Library. The company says the technology will improve the performance of applications such as Java-based software and databases that run multiple tasks concurrently.

The new release also includes support for larger symmetric multiprocessing, memory and I/O configurations, largely in

response to customers who might look at Linux for use in server clusters and on bigger servers running ERP, CRM and database applications.

Red Hat Enterprise Linux 3 is based on common code that will let it run on a variety of hardware platforms including Intel x86 and Itanium, AMD Opteron and IBM's zSeries mainframes, iSeries, pSeries and S/390 servers. In the past, Red Hat added support for new systems incrementally. Common code will let users more easily scale servers, Red Hat says.

Adecco, a staffing and human resources firm that manages more than 500,000 employees annually, used Linux this year for Web and application servers. Updates in Red Hat Enterprise Linux 3 make it a viable alternative for critical database applications now running on Unix, says Joseph Pagliaccio, IT director for the Melville, N.Y., firm.

"We're very excited about the

memory management," he says. "We're hoping [that] with improved memory management we'll have the same success we've seen with application servers and Web servers moving to Linux. [Red Hat Enterprise Linux 3] opens up the possibility of doing this with the database environment."

Bill Claybrook, an analyst at Aberdeen Group, says the improved performance and scalability, particularly the support for Native Posix Threading Library, will help push Linux deeper into enterprise data centers.

"It's one of those features that's bringing Linux more in line with the functionality that's been provided by Unix," he says. "That's the goal. All of these features that creep into Linux over time that make it look like Unix are a good thing."

Red Hat Enterprise Linux 3 is priced as annual subscriptions ranging from \$180 for the basic

WS desktop version to as much as \$18,000 for the enterprise AS version on IBM mainframes with full, premium support. Current Red Hat Enterprise Linux subscribers can upgrade at no charge. ■



Subscribe to our free newsletter.
DocFinder: 5434 www.nwfusion.com



THIS WEEK'S QUESTION:

What year did Lucent last publicly announce the acquisition of another company?

Stumped? Get the answer online. Visit [Network World Fusion](http://NetworkWorldFusion.com) and enter 2349 in the Search box.

www.nwfusion.com

There are places where you can have
Wi-Fi access while drinking a latté.

This isn't one of them.



No Wi-Fi? You're Covered.

You won't always be near a Wi-Fi "hot spot." That's why enterprise mobility applications based on 3G CDMA wireless networks are revolutionizing business in ways that Wi-Fi can't. Offering ubiquitous coverage and speeds better than landline dial-up, you'll have instant access to everything behind your corporate firewall. Best of all, you won't be limited by "hot spot" availability. Remember, not all wireless technologies are created equal. To find out what the differences are, ask your wireless provider whether they offer true nationwide 3G services.

www.qualcomm.com/enterprise7

QUALCOMM

©2003 QUALCOMM Incorporated. All rights reserved.

Office takes over collaboration reins

Users ponder implications as Microsoft Office takes over tasks from Exchange.

■ BY JOHN FONTANA

Microsoft officially has passed its collaboration torch from Exchange to Office in the hopes of igniting corporate upgrades to the applications suite, but users are leery of the software giant's plan.

At the launch last week of Office 2003 and Exchange 2003, the desktop suite took the collaboration center stage once held by Exchange, which just two years ago was the nerve center of Microsoft's collaborative strategy.

Now Exchange has been folded into Microsoft's Office System 2003, a collection of servers and services that form a collaboration infrastructure with Office as a front-end client. The package can create and share XML-based data, as opposed to a set of static, stand-alone desktop applications.

Microsoft's Chief Software Architect Bill Gates says Office System will drive collaboration, highlighted by XML-based data and application integration.

It's the latest turn of events that has seen Exchange go from e-mail server to collaborative application-development platform and back again. The new strategy is intended to recharge upgrades to Office, which has seen revenue flatten over the past five years. Microsoft also says it hopes the plan will generate interest in a collection of servers that support everything from document management to instant messaging to business workflow.

The focus now is on selling Office as the foundation of customized applications to send and

receive data as part of business processes, and on proving to corporations that a bulky and expensive desktop client is better than a browser.

Users and analysts say it is hard to accept and must be approached with a long-term plan.

"We're trying to figure out how much we want to bite off," says Tony Saxman, director of information services for the College of Business at Oregon State University in Corvallis. "There can be a fair amount of adjusting to do." The college has been a regular early adopter of Exchange technology, but Saxman says Exchange can no longer support the hosting and housing of collaborative data and will return to being an e-mail engine.

"When we first started out, we took the collaborative features as they came out," Saxman says. "Now we have to look at the big picture and ask what we need so we can connect to other universities and students. How do we do that?" He says a likely place to start will be SharePoint Portal Server, a document management server that is part of Office System.

Analysts say any moves should be highly orchestrated.

"You have to be aware of what is going on here," says Chris LeTocq, an analyst with Guernsey Research. "You start something in one place and people will need software in another place. You need a collaboration roll-out plan, and it should probably be a long-term plan."

Long term because Office System starts with Office 2003

Higher Office

Microsoft's Office System is a collection of software and hosted services designed for building a collaboration infrastructure with the Office suite of applications as the front end.

Product	Purpose
Office 2003	With new additions InfoPath and OneNote, the application suite is the front end for collaboration. Support for XML is key to importing and exporting data.
SharePoint Portal Server 2003	Adds search and document management features to file storage and to ad hoc team workspaces created using SharePoint Services in Windows 2003.
Exchange 2003	Back to pure messaging.
Project Server 2003	Formal project management package that integrates with SharePoint sites.
BizTalk Server 2004	Supports application integration and business workflow.
Live Communications Server 2003	Instant messaging and presence support in Office applications, SharePoint sites.
Live Meeting	Hosted service that incorporates Web conferencing into the Office System.
Windows Server 2003	The foundation operating system for collaboration, including network, security, rights management and directory services.
Visual Studio .Net	The development platform for building XML-based and other applications on top of Office.

and Windows Server 2003, then incorporates multiple back-end servers to support asynchronous and real-time data exchange. Also included will be integration middleware and a set of development tools for building XML applications based on Office (see graphic).

It's an infrastructure Microsoft is feeling pressure to create. Rival

IBM/Lotus is building its own collaborative infrastructure by marrying components of Notes/Domino with its WebSphere middleware line. Competitors such as Apple, Corel, Oracle and Sun also are jumping into the game to merge business applications and collaborative strategies.

"Microsoft had to do something to bring more cohesion to the collaboration pieces that it was cobbling together," says Dwight Davis, an analyst with Summit Strategies. "It makes sense to consolidate all the collaboration under a common client, but it seems a stretch that IT will upgrade to Office 2003 to get that collaboration."

Others say XML integration in Office, which lets it contribute data directly to business processes, will be inviting to end users. For example, OneSource, a vendor that provides company profile data, including financial information and analyst reports, now can publish its XML-based data directly to a Word document or Excel spreadsheet without the need for a custom connector. ■

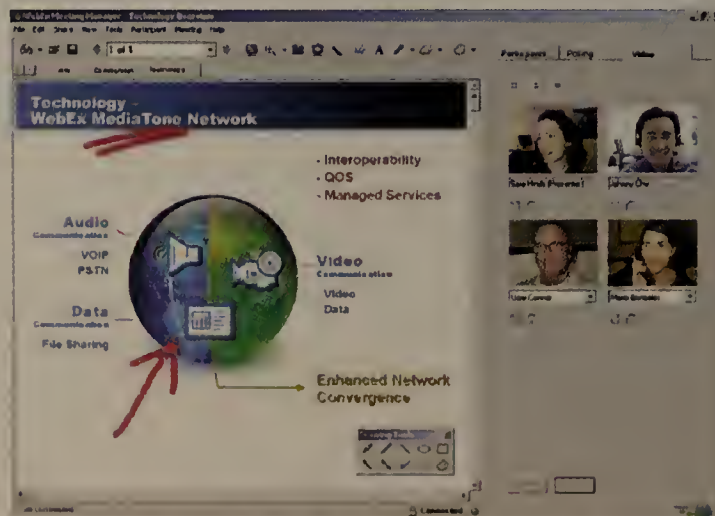
WebEx adds one-click meetings

■ BY JASON MESERVE

WebEx Communications last week rolled out a number of enhancements to its Web conferencing service, including the ability to launch a meeting from any Windows application.

Customers now can set up a meeting from any Windows program by right-clicking and selecting the WebEx meeting option. WebEx also is adding Meeting Center Web conference access to the Microsoft Office toolbar and offering integration with Outlook, letting end users schedule a WebEx meeting in the calendar dialog.

See WebEx, page 16



WebEx now offers multipoint video in its Web conferencing application. Users only need a standard Webcam to capture video.

NetworkWorld

EDITORIAL DIRECTOR: JOHN GALLANT
EDITOR IN CHIEF: JOHN DIX

■ NEWS

EXECUTIVE EDITOR, NEWS: BOB BROWN
ASSOCIATE NEWS EDITOR: MICHAEL COONEY
ASSOCIATE NEWS EDITOR: PAUL MCNAMARA

■ INFRASTRUCTURE

SENIOR EDITOR: JOHN FONTANA
(303) 377-9057, Fax: (303) 377-9059
SENIOR EDITOR: JOHN COX
(978) 834-0554, Fax: (978) 834-0558
SENIOR EDITOR: DENI CONNOR
(512) 345-3850, FAX: (512) 345-3860
SENIOR EDITOR: TIM GREENE
SENIOR WRITER: PHIL HOCHMUTH

■ NET.WORKER

MANAGING EDITOR: TONI KISTNER, (207) 878-8246

■ SERVICE PROVIDERS

SENIOR EDITOR: DENISE PAPPALARDO,
(703) 768-7573
MANAGING EDITOR, THE EDGE: JIM DUFFY

■ ENTERPRISE APPLICATIONS

SENIOR EDITOR: ELLEN MESSMER,
(941) 792-1061
SENIOR EDITOR: CAROLYN DUFFY MARSAN,
(703) 917-8621, Fax: (703) 917-8622
SENIOR EDITOR: JENNIFER MEARS,
(608) 836-8490, Fax: (608) 836-8491
SENIOR EDITOR: ANN BEDNARZ
SENIOR WRITER: DENISE DUBIE
SENIOR EDITOR: CARA GARRETSON, (240) 246-0098

■ COPY DESK/LAYOUT

ASSISTANT MANAGING EDITOR: RYAN FRANCIS
COPY CHIEF: BRETT COUGH
SENIOR COPY EDITOR: JOHN DOOLEY
COPY EDITORS: GREG CUSACK, MONICA HAMILTON

■ ART

DESIGN DIRECTOR: ROB STAVE
ART DIRECTOR: TOM NORTON
SENIOR DESIGNER: BRIAN GAIDRY
GRAPHIC DESIGNER: JACY EDELMAN

■ FEATURES

FEATURES EDITOR: NEAL WEINBERG
SENIOR MANAGING EDITOR, FEATURES: AMY SCHURR
OPINIONS PAGE EDITOR: SUSAN COLLINS

■ REVIEWS

TEST ALLIANCE DIRECTOR: CHRISTINE BURNS,
(717) 243-3686
SENIOR REVIEWS EDITOR: KEITH SHAW (508) 490-6527
TEST ALLIANCE PARTNERS: JOEL SNYDER, Opus One;
JOHN BASS, Centennial Networking Labs; BARRY
NANCE, independent consultant; THOMAS
POWELL, PINT; Miercom; THOMAS HENDERSON,
ExtremeLabs; TRAVIS BERKLEY, University of
Kansas; DAVID NEWMAN, Network Test;
CHRISTINE PEREY, Perey Research & Consulting;
JEFFREY FRITZ, University of California, San
Francisco; JAMES GASKIN, Gaskin Computing
Services; MANDY ANDRESS, ArcSec; GREG GOD-
DARD, University of Florida; RODNEY THAYER,
Canola & Jones
CONTRIBUTING EDITORS: DANIEL BRIERE, MARK GIBBS,
JAMES KOBELIUS, MARK MILLER

■ NETWORK WORLD FUSION

EXECUTIVE EDITOR, ONLINE: ADAM GAFFIN
MANAGING EDITOR: MELISSA SHAW
EVENTS EDITOR: SANDRA GITTLEN
MANAGING EDITOR, ONLINE NEWS: JEFF CARUSO,
(631) 584-5829
MULTIMEDIA EDITOR: JASON MESERVE
ONLINE COPY CHIEF: SHIERLY HODGE
ONLINE GRAPHIC DESIGNER: ZACH SULLIVAN

■ SIGNATURE SERIES

EDITOR: BETH SCHULTZ,
(773) 283-0213, Fax: (773) 283-0214
EXECUTIVE EDITOR: JULIE BORT, (970) 482-4454
COPY EDITOR: BRETT COUGH

EDITORIAL OPERATIONS MANAGER: CHERYL CRIVELLO
OFFICE MANAGER, EDITORIAL: GLENNA FASOLD
EDITORIAL OFFICE ADMINISTRATOR: PAT JOSEFFK
MAIN PHONE: (508) 460-3333
E-MAIL: first_name_last_name@nww.com

Database vendor moves back end to the middle

■ BY ANN BEDNARZ

Database maker InterSystems is expected to unveil integration software next week aimed at making it easier for users to build composite applications that cull data from existing legacy systems.

InterSystems' new Ensemble platform combines the vendor's database technology with new integration tools, an application server and a common development environment. Modeling and management features help users integrate data sources, map business processes, and build and monitor composite applications.

At the core of the Ensemble suite is an object database for managing and storing metadata, messages and process information. This persistent object engine, which is based on InterSystems' Cache relational database technology, is what differentiates Ensemble from other application integration suites, says Roy Schulte, a vice president at Gartner.

The object engine sits between systems and makes it easier for users to develop new applications by masking the com-

plexity of the links to heterogeneous back-end systems, Schulte says.

"The new code, rather than going out to get data from existing databases, goes to this virtual object which is sitting in the middle of the network," Schulte says. "Behind the scenes there may be a lot of sophisticated things happening to map that persistent object in the middle back to the actual original source application databases. But you don't have to see all the ugliness."

While InterSystems' approach is novel — neither BEA Systems nor IBM nor Microsoft offers anything similar — the technology is not mainstream and requires learning a new style of development, he says.

Moreover, InterSystems will have to work to gain recognition among users because it's not known as a player in the integration

market, says Mark Ehr, a senior analyst at Enterprise Management Associates.

One customer that's already onboard is the State of Florida's Department of Children and Families (DCF). The agency uses Ensemble to construct a consolidated view of data that's scattered across dozens of disparate databases and accessed by 59 different systems.

The goal is to create a single view of all relevant data about a client, says Glenn Palmiere, IT director at DCF in Tallahassee. DCF conducted a pilot project last year to connect five systems and is working to extend its Ensemble deployment across all 59 systems, Palmiere says. Down the road, DCF plans to pull in information from other agencies that deal with health and human services in Florida.

"We're basically going to create a single

family interface so that regardless of which agency provides the service and regardless of the system that the data is stored on, an individual will be able to access all the information related to a person," he says.

Ensemble's real-time characteristics are critical, Palmiere says. Rather than collecting and storing information in a data warehouse, Ensemble lets DCF extract data elements at the moment a user needs the information, he says. "When you're talking about data that's relevant to an individual's life or care, you do not want data that was refreshed a week ago," he says.

Ensemble runs on HP Alpha OpenVMS, HP Alpha Tru64, Unix, HP-UX, IBM AIX, Linux, Sun Solaris and Windows platforms. Pricing starts at \$125,000 per CPU. ■

Pricey integration

Large companies spent an average of

\$3 million

on integration in 2002, and midsize companies spent \$1.1 million, according to AMR Research.



More online!

Trying to re-architect your data center? Attend our free seminar to learn some sure-fire strategies.

DocFinder: 8251

IF WE CAN'T AFFORD THE SOLUTION, THEN IT'S NOT A SOLUTION.

If you are a growing enterprise, your need for new software always exceeds your budget. Or does it? SAP has a range of solutions to fit any size business and any budget. Solutions that can be up and running quickly — even in a matter of weeks. And since they're modular and based on an open platform, they can grow and expand as you do. SAP has over 30 years of experience helping businesses of all sizes solve business issues. Affordably.

THE BEST-RUN BUSINESSES RUN SAP



FOR AN OPPORTUNITY TO WIN AN ALL-EXPENSE-PAID TRIP TO A BUSINESS MANAGEMENT SEMINAR, LOG ON TO SAP.COM/USA/AFFORDABLE OR CALL 888 592 1727

© 2003 SAP AG. SAP and the SAP logo are trademarks and registered trademarks of SAP AG in Germany and several other countries. Project timeline subject to specific project scope and other factors. Contact the above website for further details. Covered expenses limited solely to seminar registration fee, airfare, and accommodations as specified by SAP. Offering subject to additional terms and conditions and subject to change or end without notice.

Root servers

continued from page 1

routing technique, and the DNS is more robust than ever," says Paul Mockapetris, inventor of the DNS and chairman of DNS software vendor Nominum. "The DNS is more resilient than it was a year ago by a factor of two."

A reinforced DNS is a boon to enterprise network managers who need a rock-solid root server and DNS system for all of their IP services to function. However, one network executive resists putting much faith in a new DNS technique until it's been tested under attack.

DNS is "still not as secure as it could be, or should be," says Stephen Lengel, systems engineering manager at The Service-Master Co. in Downers Grove, Ill., which provides heating, cooling, landscaping, pest control and appliance maintenance services, and has about 20,000 users on its network. Despite the use of techniques such as Anycast, no technology is 100% safe from attack, he adds. "It's usually just a matter of time before someone exploits it or finds a hole in it."

While distributed DoS attacks have occurred for years, last October's assault on the Internet's 13 root servers — which run the master directory for lookups that match domain names with their corresponding IP addresses — served as a wake-up call to the vulnerabilities inherent in the distributed design of DNS. Below the root servers are the servers that support top-level domains such as .com, .net and .org, and below the top-level domain servers are hosts of Web sites.

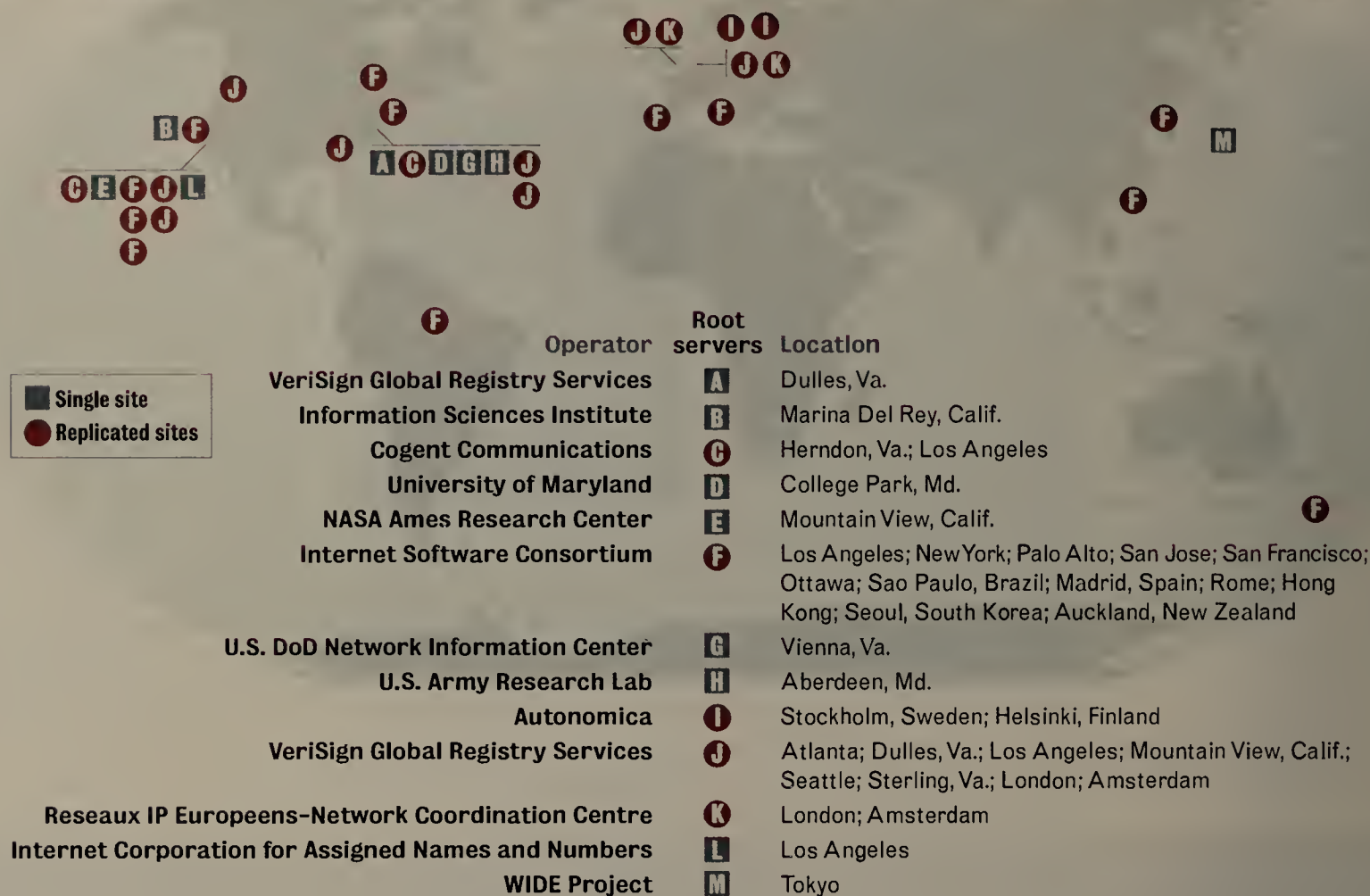
During a distributed DoS attack, a hacker hijacks machines across the Internet and uses them to send a flood of requests to a server until it becomes overwhelmed and stops functioning.

Last October, the root servers were under a distributed DoS attack for about an hour, causing several servers to stop being available to regular Internet traffic. However, the remaining root servers withstood the attack and ensured that the Internet's overall performance was not degraded. Nonetheless, this was the most serious hacker attack ever on this key piece of the Internet infrastructure, and it was an eye-opener for the root-server operators.

Without the root servers, the Internet cannot function. Named by the letters A through M, the root servers are operated by U.S. government agencies, universi-

Copies of Internet root servers proliferate worldwide

Using a routing technique called Anycast, operators have more than doubled the number of root servers over the past year, bringing the total to 34. The expansion will help ward off DDoS attacks such as the one launched a year ago.



ties, nonprofit organizations and companies such as VeriSign. Of the original 13 root servers, 10 are located in the U.S., one in Asia and two in Europe.

With Anycast, the root server operators are replicating these servers around the world. Four of the root-server operators — including the Internet Software Consortium and VeriSign — have mirrored their root servers. There are now 34 locations worldwide with root servers or replicas deployed.

Using this technique, Internet addresses are "more like 800 numbers that get routed to call centers," Mockapetris says. "There are...more root servers scattered around the network than there used to be. It's not necessarily that the servers are more available but that the [data is] more distributed."

As extra root servers are deployed using Anycast, the root server system acquires additional capacity if another distributed DoS attack occurs. DNS experts say the root server system is much better equipped to respond to this type of attack than it was a year ago, because of Anycast and concurrent hardware and software upgrades.

"Trying to attack the root DNS servers is probably one of the most foolish things you can do," says Daniel Golding, senior con-

sultant with Burton Group. "It's easy to down a single [Web] site, but with a distributed infrastructure that's moving to Anycast, it's just really kind of dumb. It's not going to be that effective."

Anycast is a routing technique that announces a particular block of IP addresses can be reached from a number of routers. The technique tells the Internet that queries to that address space should go to the closest available router. The 10-year-old technique is built into IPv6, the next-generation of IP, but this is the first time Anycast has been deployed in the DNS.

"Anycasting is something that had been discussed among all of the root operators for a considerable amount of time, long before the attacks [of last October]," says Ken Silva, vice president of networks and information security at VeriSign. But after the attacks "was the time to roll it out," he says.

Starting last November, the Internet Software Consortium began deploying mirrored copies of its F root server around the globe using Anycast. Since then, the consortium has announced mirrored copies of its U.S.-based root server being deployed in Brazil, Canada, Hong Kong, Korea, New Zealand and Spain. Today, the F root server and its replicas are located in 12 sites.

A year ago, VeriSign had a single address space for both its A and J root servers, both of which remained operational during the distributed DoS attack. Since then, VeriSign has acquired new address space for the J root and deployed mirrored copies of it around the globe.

VeriSign this year used Anycast to mirror its J root server in six locations in the U.S. plus London and Amsterdam. VeriSign also has two mobile Anycast sites for its J root, which can reside anywhere within VeriSign's global network infrastructure if needed.

"We tested Anycast for about a year...to monitor its behavior," Silva says. "These are important servers, and we didn't want to make any rash decisions about deploying it." Silva says Anycast is working well and hasn't introduced any major complexities or problems into the Internet.

However, VeriSign has not used Anycast to mirror the A root server that sits in a highly secured facility in Dulles, Va.

"The A root sits on an address block that is shared with other legacy services such as Whois and an InterNIC FTP server, so Anycasting that address block is not a good idea right now," Silva says. "The A root server has sufficient capacity for now, but we ultimately will Anycast that

server" after splitting off the legacy services.

Anycast has many benefits besides protection against distributed DoS attacks. ISPs get faster response times to their root-server lookups because the closest available server handles the queries and the servers are more distributed.

The root-server system is more resilient now because many regions of the world have local root servers that can continue to operate if a major physical connection to the rest of the Internet suffers an outage.

The root-server operators have spent millions of dollars on the hardware, software and engineering expertise required to set up mirrored sites around the globe using Anycast. VeriSign says it has spent \$150 million in the past two and a half years rolling out a more secure and resilient infrastructure for its A and J roots and the .com and .net top-level domains. This investment includes the deployment of Anycast.

"The attacks of October last year didn't come as a surprise to us," Silva says. "We feel we were prepared, but now we feel like we need to be prepared for something even bigger." ■



Get more information online.
DocFinder: 8248
www.nwfusion.com

UNSCRAMBLE THE PUZZLE ABOUT UNIX MIGRATION.



COSTS WILL PLUMMET AND ROI WILL SOAR.

Choose Dell coupled with Microsoft® Windows® Server 2003 and you've found the trick to UNIX migration. It's called flexibility. And it's a combination that gives you incomparable value through reduced IT costs. Plus, you'll have the agility to respond to new trends. Without question, the teaming of Dell and Microsoft is a boon to productivity and a bear on your TCO. How's that for a better way? Find out more. Call 1-866-871-9881 or visit www.DELL.com/MSmigration and get a free business case analysis on migrating to a Dell/MS Server 2003 solution.

visit www.DELL.com/MSmigration or call 1-866-871-9881
for your free UNIX migration business case analysis



Net execs are bullish on outsourcing

Small to midsize companies rely on managed services rather than hiring in-house staff.

■ BY DENISE DUBIE

MANSFIELD, MASS. — Bertucci's James Lux told an audience of network managers last week that he turned to outsourcing to quickly and inexpensively connect the restaurant chain's 90 locations with voice over IP, speed credit-card transaction processing and support online applications.

"IT is a hard sell in my business. Restaurant people care about good food and service, not about how to manage routers," Lux, vice president of IT, said at the local event sponsored by Vanguard Managed Solutions. "I have to make a good case to spend more money in IT."

Lux convinced upper manage-

ment by detailing how outsourced network services would reduce the time it took to process transactions from about 15 seconds to more like 2 to 3 seconds. Rolling out Vanguard's 340 Router and signing on for managed services with the company helped him cut long-distance charges by half and bring Bertucci's up to speed without having to add IT personnel.

"I estimated for the network expertise, I would have had to spend \$100,000 on at least one IT specialist in-house," Lux said. "If I was thinking like a larger IT-focused business, it would make sense to hire someone. But as a restaurant, it makes sense to outsource."

According to Gartner, the mar-



"IT is a hard sell in my business. Restaurant people care about good food and service, not about how to manage routers."

James Lux
Vice president of IT, Bertucci's

ket for outsourced IT and management services reached almost \$280 billion last year and should grow to \$410 billion by 2007. A study conducted by ThinkStrategies found 39% of companies doing some form of

network outsourcing and another 17% considering network outsourcing.

Of those companies currently outsourcing, approximately 60% are doing so to reduce head count and other costs. About 20% of the companies are seeking to improve service quality and reliability, the study found.

Of those considering outsourcing, 40% say they would like to cut costs, and 30% want to improve service quality and reliability, according to ThinkStrategies.

Among companies not considering outsourcing, 62.5% are concerned that it will cost more than expected and half are afraid of losing control of network operations, says Jeff Kaplan, managing director of the IT consulting firm.

Outsourcing leaders include CSC, Electronic Data Systems and IBM, all of which sign multi-

million dollar deals that encompass multiple technologies with enterprise customers. But service providers such as NetSolve, SevenSpace and Vanguard typically sign contracts designed to fill IT skills gaps quickly for small to midsize companies such as Bertucci's.

Stephen Lynch, director of technology infrastructure at Citizens Financial Group, uses Vanguard's Managed Router service. He said that when his company acquired another company in 2001, he had just two days to get 400 locations connected to Citizens' corporate network. He also needed to ensure consistency across the acquired locations and Citizens' core network. He decided to outsource the job.

"We like to say it was the Jurassic Park of technology, and we had to convert each location," he said.

Citizens' was able to get a frame relay network up and running parallel to the TDM network the company had in place. With a 12- to 15-person team, Citizens worked with Vanguard to coordinate legacy data, account information and systems. Most important to Lynch was the flexibility of working with an outsourcer.

"We were able to quickly establish communications, negotiate pricing and create a workable contract," Lynch said. ■

C&W

continued from page 1

The shutdown is the latest strategy change at the struggling carrier that has kept customers on edge and analysts on their toes. "I wouldn't take anything they say as a guarantee," says Ron Kaplan, an analyst at IDC. "They have exited a lot of markets, and they keep redefining their core business."

In May 2002, the company dropped U.S. customers that only used its services domestically, but stressed its commitment to customers with multinational service needs. However, this past June the carrier announced plans to exit the U.S. market entirely (www.nwfusion.com, DocFinder: 8249). In between, the carrier carried out a major business restructuring, laying off more than 3,000 employees at one point.

C&W could have sold its remaining 100 to 400 ATM and frame customer contracts, as it did earlier this year with other contracts, but the service provider decided that was not an option. The carrier likely has been migrating as many of its legacy data service customers as it could onto its IP VPN services over the last several months, says Brownlee Thomas, an analyst at Giga Information Group.

The carrier declined to say specifically why it is decommissioning the backbones rather than selling them off, offering

Breaking the bad news

Excerpts from a letter C&W sent to customers:

Oct. 14, 2003

Dear Customer,

Cable & Wireless in the U.S. remains committed to providing exceptional value to the U.S. marketplace, and we are continuing to evaluate our service offerings in order to deliver the highest quality services to our customers.

Based on this ongoing evaluation we are rationalizing our product set to focus on hosting and IP solutions . . . As a result, Cable & Wireless in the U.S. will no longer offer the Frame Relay and ATM services we currently provide to your company.

only that it is "trying to make the business stronger and profitable."

Thomas says that ridding itself of the ATM and frame backbones — which presumably weren't pulling in much revenue — might make the rest of C&W America more attractive to suitors.

However, that's of little comfort to the carrier's hosting and IP service customers.

"There is some concern about what they're going to do," says Richard Thimble, manager of IT at Moldflow, a software company for the plastics industry, which relies on the carrier to manage a 15-site IP VPN in the U.S., Europe and Asia. "But there's not a lot I can do about that. We're under contract, and so are they."

Thimble says even if C&W is successful selling off its hosting

and IP services businesses, there's no guarantee he'll be happy with the outcome.

"There are certain companies that I wouldn't want to buy them," he says.

IDC ranked C&W as the second-largest Web hosting service provider in the U.S. coming into this year, with a 13.4% share of the market. IBM Global Services is the market leader, while AT&T, Digex, Electronic Data Systems and MCI are among the other players. C&W was ranked as the 10th-largest business ISP in the U.S. last year.

The company says it will continue to offer ATM and frame relay services outside the U.S. ■



Get more information online.
DocFinder: 8246
www.nwfusion.com

WebEx

continued from page 12

The Windows integration effort seems to mirror what Microsoft is doing with its Live Meeting Web conferencing offering (formerly PlaceWare), a chief competitor.

"Web conferencing is big into scheduling, but it won't be part of the way we work until it is part of our ad hoc culture," says Andy Nilssen, a senior analyst with Wainhouse Research. "One-click starts making Web conferencing more ingrained into the way we work."

WebEx also now offers multipoint video capability, letting any participant with a basic Webcam be seen by others during a conference. Admittedly, the company is not honing in on the traditional video-conferencing vendors. "This is not designed to compete with the Polycoms of the world. It's basic video to enhance the WebEx experience," says Praful Shah, vice president of strategic communications at WebEx.

Other additions to the service include a new note-taking panel to let meeting minutes be recorded, and the ability to provide meeting transcripts (minutes, presentations and documents used) to participants when the conference ends.

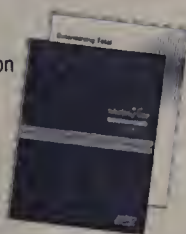
WebEx says existing customers will get the new features automatically. Pricing remains the same, with a \$100 per port, per month, charge for the basic service and \$200 per port, per month, fee for advanced features. Audioconferencing is billed separately through WebEx, or customers can integrate their existing audio services. ■

FREE White Paper!

"Determining Total Cost of Ownership for Data Center and Network Room Infrastructure"

Just mail or fax this completed coupon or contact APC for your FREE white paper, "Determining Total Cost of Ownership for Data Center and Network Room Infrastructure."

Also receive our FREE InfraStruXure™ brochure. Better yet, order both today at the APC Web site!



Key Code
n895y

<http://promo.apc.com>

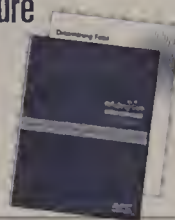
(888) 289-APCC x2979 • FAX: (401) 788-2797

APC
Legendary Reliability®

FREE White Paper "Determining Total Cost of Ownership for Data Center and Network Room Infrastructure"

☐ **YES!** Please send me my FREE white paper and InfraStruXure™ brochure.

☐ **NO,** I'm not interested at this time, but please add me to your mailing list.



Name:

Title:

Company:

Address:

Address 2:

City/Town:

State:

Zip:

Country:

Phone:

Fax:

E-mail:

☐ **Yes!** Send me more information via e-mail and sign me up for APC PowerNews e-mail newsletter.

Key Code n895y

What type of availability solution do you need?

- ☐ UPS: 0-16kVA (Single-phase) ☐ UPS: 10-80kVA (3-phase AC) ☐ UPS: 80+ kVA (3-phase AC) ☐ DC Power
☐ Network Enclosures and Racks ☐ Precision Air Conditioning ☐ Monitoring and Management
☐ Cables/Wires ☐ Mobile Protection ☐ Surge Protection ☐ UPS Upgrade ☐ Don't know

Purchase timeframe? ☐ < 1 Month ☐ 1-3 Months ☐ 3-12 Months ☐ 1 Yr. Plus ☐ Don't know

You are (check 1): ☐ Home/Home Office ☐ Business (<1000 employees) ☐ Large Corp. (>1000 employees)
☐ Gov't, Education, Public Org. ☐ APC Sellers & Partners

©2003 APC All trademarks are the property of their owners. ISX3A3EB-US • E-mail: esupport@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON RI

POSTAGE WILL BE PAID BY ADDRESSEE



ATTENTION CRC: n895y
Department: B
132 FAIRGROUNDS ROAD
PO BOX 278
WEST KINGSTON RI 02892-9920



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



How to Contact APC

Call: (888) 289-APCC

use the extension on the reverse side

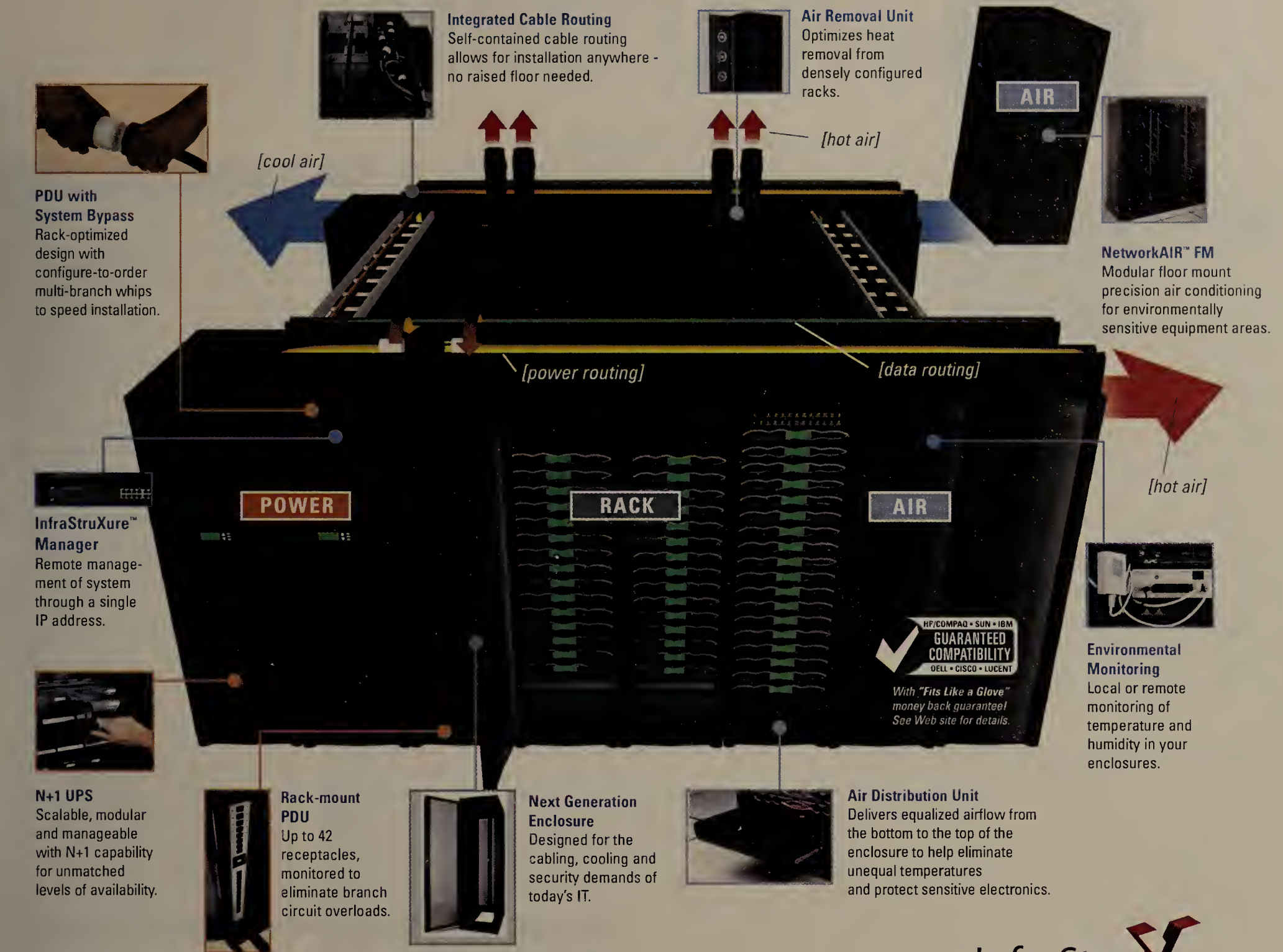
Fax: (401) 788-2797

Visit: <http://promo.apc.com>

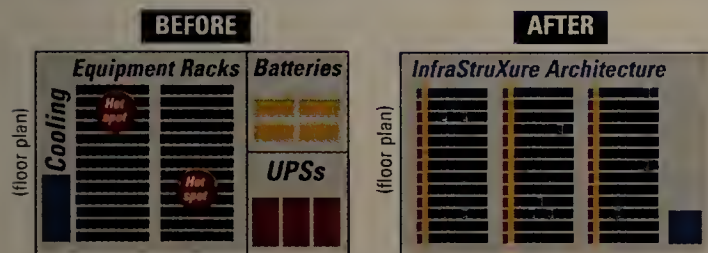
use the key code on the reverse side



If they come, you will build it.



Pay as you grow with new InfraStruXure™ architecture.



Traditional data centers are built out for future capacity and require a large amount of floor space that could be otherwise utilized. High power density racks create dangerous hot spots.

InfraStruXure™ lets you build out capacity only as it's required. Save up to 50% CapEx and 20% OpEx*, and reclaim an average of 20% usable space. InfraStruXure AIR delivers cooling directly where it is needed, eliminating dangerous hot spots.

InfraStruXure™ is the industry's only patent-pending, on-demand, network-critical physical infrastructure (NCPI).

Build out capacity only as it's required with InfraStruXure's open, adaptable and integrated approach. Select standardized components to create your own customized solution.

Finally, you can target availability, pay as you grow, adapt to change and maximize efficiency while minimizing installation, operating, service and maintenance costs.

To find out more visit us online at www.apc.com, or see below to get your free InfraStruXure brochure and white paper today.

*Representative savings based on projected power infrastructure built-out costs and estimated service cost per unit. Actual savings may vary.

InfraStruXure™

POWER RACK AIR

Open, adaptable and integrated architecture for on-demand network-critical physical infrastructure

2002 Communications Solutions Magazine's "Product of the Year"

Winner of the Communications Solutions Magazine's "2002 Product of the Year" award.

APC®
Legendary Reliability®

FREE White Paper on "Determining Total Cost of Ownership for Data Center and Network Room Infrastructure" and Free InfraStruXure™ Brochure

Visit <http://promo.apc.com> Key Code n895y • Call 888-289-APCC x2979 • Fax 401-788-2797

That's
their job.

That's
their job.

AT&T and AT&T Wireless:
Two companies to contend with.

Sprint:
One company
to count on.

Your business will enjoy integrated wireline and wireless service from the same company – Sprint.

By dealing with one company when doing business with Sprint, you'll benefit from:

- End-to-end accountability
- Wireless and wireline integrated and managed as one seamless network
- Smoother migration and fewer headaches

Get the facts at sprint.com/facts or call 866-700-0029 for a Business Representative.



One Sprint. Many Solutions.SM

Voice/Data

PCS Wireless

Internet Services

E-Business Solutions

Managed Services

Infrastructure

■ LAN/WAN SWITCHES AND ROUTERS
 ■ ACCESS DEVICES ■ SERVERS ■ VPNS
 ■ OPERATING SYSTEMS ■ NETWORKED STORAGE
 ■ VOIP ■ WIRELESS NETWORKS

Short Takes

■ **IBM** last week announced a number of enhancements to its **Shark Enterprise Storage System Model 800** arrays designed to increase the performance and ease of management of the storage systems. The ESS 800's **Peer to Peer Remote Copy disaster-recovery software** will support the Fibre Channel interconnect standard, which means customers now will be able to do remote backup and recovery with fewer switches and networking devices than the Enterprise Systems Connection protocol, which the current models of Shark employ. When the enhancements become available Nov. 21, the ESS 800 also will include an optional new 750-MHz PowerPC processor called Turbo II, which will increase the array's performance by 30%, according to IBM. IBM also has extended its support of the Storage Networking Industry Association's Storage Management Initiative standard so that more of Shark's capabilities will be available to software written to the SMI standard.

■ Meanwhile, **IBM** has backed up **Sony Ericsson Mobile Communications'** introduction of its **P900 smartphone** with a set of software offerings, including a VPN feature and an easier way to set up access to enterprise applications. Mobile employees will be able to connect securely to applications over an intranet or the Internet using the VPN capability. IBM's **WebSphere Everyplace Connection Manager** can create an encrypted VPN on IP networks and non-IP or private packet radio networks. The basic applications IBM is making available on the phone are e-mail and personal information manager functions. Its WebSphere Everyplace Access middleware, which includes both server-based and client elements, supports Microsoft Outlook and IBM's Lotus Notes for e-mail and PIM. For instant messaging, it initially will support only Lotus Notes Instant Messaging. The P900 smartphone is expected to be available in the first quarter of 2004. Price should range from \$466 to \$582, Sony Ericsson says.

Q & A Dell exec: Standards, simplicity are key



Dell continues to inch its way deeper into corporate data centers with a standards-based, modular approach to computing that is starting to catch on industrywide. Competitors such as HP, IBM and Sun are recognizing a move away from proprietary systems and toward standard, low-cost boxes. But how will Dell — which continues to post positive earnings even in these tough economic times — keep its position as the low-cost leader as other systems vendors move into its territory? Network World senior editors Deni Connor and Jennifer Mears recently spoke with Dell President and COO Kevin Rollins to hear about where Dell is heading.

How do you envision the computing center and the networked infrastructure supporting it to change in the next couple of years?

As standards continue to emerge you will see more and more Intel and Microsoft/Linux-based systems in the data center, and a continued decline in the Unix space. That's obviously advantageous to us. Many of our competitors have big bets in the Unix space, so we believe that that's going to continue to deteriorate their performance and be a drag. At the same time, customers are moving more to standards-based products. We only have those, and all our efforts of development and customer satisfaction are based on those products. We see that the move in the industry technologically is coming toward us.

How does Dell use standards to commoditize a market and capi-

talize on it?

If you look at where standards play, they don't play very well with companies that have proprietary structures. They don't have a cost structure in terms of [research and development] and their sales models that really supports it. Subsequently, you've seen what were the largest server companies in the world lose money in their current enterprise businesses. The issue is when you move to standards, cost, logistics, distribution and efficiency become extremely important. Those companies are not set up to fly in that environment. Take Sun: They were always Unix and they're having trouble. HP is the largest Intel server company in the world, and even they don't make any money. So the real benefit is we already have a model that is refined for that standards-based, commodity-based environment. As we see more software and systems management software come and support standards — which we are — it flies into the sweet spot of our business model and leaves the sweet spot of our competitors' business models.

What do you think of high-level directions such as utility, automatic, grid or on-demand computing? How real are they, and do they pose any threat to Dell's business?

They are very fancy buzzwords for models that have existed in the past that have proven unsuccessful. If you assume that the status quo will never change and that companies will continue to have all the complexity and challenges in the data center, there will be some of them who will want an on-demand type of capability. The vast majority of systems that are sold are not to that type of environment. They are to small and midsize businesses and large companies that are not looking for that kind of value and are finding they can move to a grid structure, which is more aligned with standards and simplicity. They

See Dell, page 22

Avaya suite extends call-center apps

■ BY PHIL HOCHMUTH

Avaya last week unveiled software that the company says will let customers extend call-center capabilities to multiple sites over IP.

The Customer Interaction Suite is server software that could help improve efficiency of large customer-service centers by integrating voice, e-mail and text chat call-center capabilities with other applications such as interactive voice response (IVR) and back-end CRM system integration.

While these features from Avaya are not

new, the twist with this latest release is that the applications now can run on a standard server, instead of in hardware on a proprietary automatic call distributor (ACD). Avaya says this feature can let customers use advanced call-center applications on a wider variety of ACDs, including IP ACDs, and distribute features to multiple locations.

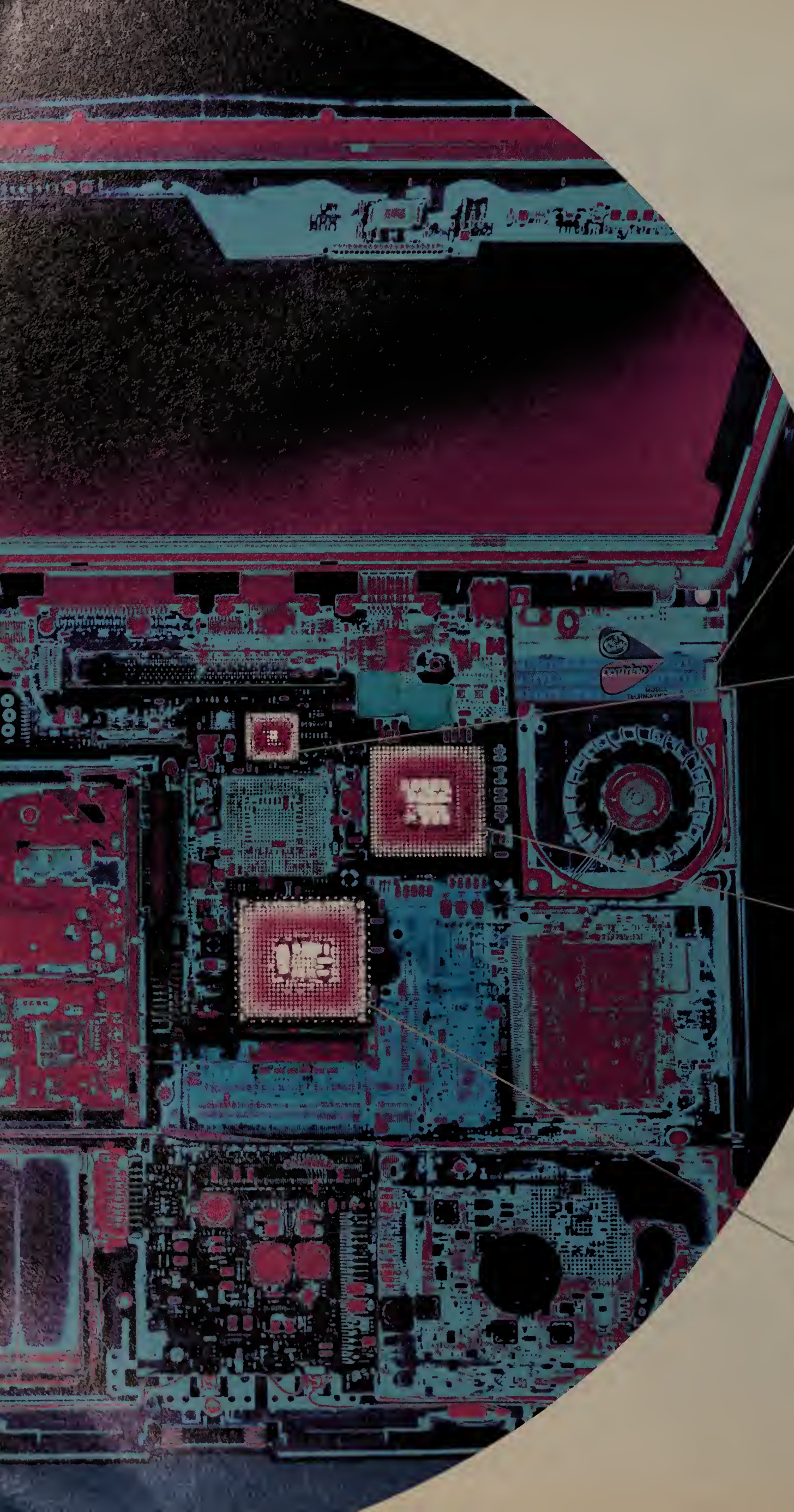
"This is more of a regrouping of products by Avaya," says Mary Wardley, an IDC analyst who covers the call-center market. While not breakthrough technology, the Call Center Suite should help businesses

better organize their customer contact infrastructure, she says.

"There are a lot of out-of-date call centers out there," she says. "They run a jumble of technologies that are not integrated well and kind of grew up in the call center organically."

Wardley adds that deploying these types of call-center applications on servers instead of digital boards on ACDs should lower the cost of deploying and maintaining these applications.

Avaya's Customer Interaction Suite is
 See Avaya, page 22



Thinner Designs:

Power efficiency allows for smaller cooling systems and lighter notebooks.

Integrated Wireless:

Built-in 802.11b wireless LAN capability eliminates the need for adapter cards.

High Performance:

Extremely responsive to the most demanding business applications.

Longer Battery Life:

Power-conserving technology enables extended battery life.

The Unwired Office starts here.

The promise of a truly wireless workforce is being fulfilled. Because Intel® Centrino™ mobile technology delivers unprecedented levels of mobility for your users and easier deployment for you. Intel is working with other industry leaders to make wireless networking not only reliable, but secure. And Intel continues to work closely with Cisco to extend Intel Centrino mobile technology's ability to support enhanced wireless security protocols.* Now you can do something the whole office will thank you for. Unwire. For all the details, go to intel.com/unwire.



© 2003 Intel Corporation. Intel, Intel Inside and the Intel Centrino logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other names and brands may be claimed as the property of others. All rights reserved. System performance, battery life, wireless performance and functionality will vary depending on your specific hardware and software configurations. See http://www.intel.com/products/centrino/more_info for more information. *Some security solutions may not be supported by your PC manufacturer. Check with your PC manufacturer for details on availability.

TOLLY ON TECHNOLOGY

Kevin Tolly



The economy seems to be coming back to life and much of the technology overkill that helped our networks survive a few tough years is being used up. Yet, if any one lesson was learned, it was that, for the foreseeable future, we'd need to "orchestrate" our LANs very carefully — optimizing assets and choosing compatible architectures.

That's precisely why "LANs: Orchestrating Your Network Assets" is the theme for this year's Network World seminar tour. (Sign up at www.nwfusion.com, DocFinder: 8229.)

During the first two weeks of November, we'll explore the topic with groups in Boston; Washington, D.C.; San Francisco and San Diego.

Joining Network World's Sandra Gittlen and me will be speakers and exhibitors

Orchestrate your LAN

from Adtran, Allot Communications, Avocent, Canon, Cisco and Foundry Networks.

As the "wrap-up" tour for the year, we'll be taking a forward-looking stance at how you can build an effective strategy for 2004. And, as an "umbrella" tour — we take a high-level, cross-technology approach — we can explore how decisions in one area, say, wireless LANs, affect your options in another area such as security.

For my part, I'll explore several areas in my morning keynote that should be able to help you deal with any and all the LAN/WAN technologies you'll need to grapple with in 2004.

My talk will be centered on what I call "the new food chain" in IT — that is, the way that technology makes its way from inception — to your doorstep.

Economic conditions have accelerated what already had been a growing trend toward outsourcing. In the past, vendors commonly would pull specialty pieces of code — SNMP, for example — from vendors that specialized in that area.

Alternatively, they would just "OEM" or relabel another vendor's product in total.

Now, we are getting something in between those two extremes.

There's a whole new pack of hardware and software vendors that make a living providing pieces to the finished product for vendors that we know and love.

These are vendors such as S3 Group or Instant802 layering features on to Intel network processors with the goal of reducing time to market and increasing box vendor profitability.

There are some vendors that serve only as designers. They decide what the product specifications are and farm out 100% of the work to others. There is a thriving business in Taiwan (and elsewhere) doing just this. And some big-name brands use this approach very successfully.

For end users, this approach provides an opportunity to understand much more about the product you are buying — if you can find out what the "components" are. The component vendors do a nice job of discussing what they offer their vendor cus-

tomers — and ultimately you.

If a product you buy is based on a particular vendor's network processor — with its own capabilities and limitations — your product automatically inherits those same attributes.

However, that doesn't mean that all products built on the same network processor, for example, are the same. That would be too easy. Network processor hardware/software vendors provide a platform upon which to develop. And, as everywhere else, they'll be some vendors that do it the right way and some that take the easy way out.

Like it or not, you can't ignore the situation. The network you are trying to architect ultimately will be built with components architected by who-knows-how-many different vendors. Understanding the lineage will give you an upper hand on building the best network.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Avaya

continued from page 19

made up of several modules:

- Interaction Center 6.1, which acts as the central nervous system for a call center, managing the flow of calls, e-mails and Web chat sessions coming into a contact center.

- Business Advocate, a predictive routing application that matches incoming caller ID information with existing customer call data and then routes the data to the call to the most appropriate agent.

- Interactive Response 1.2, a platform that lets call centers set up "self service" capabilities through IVR, with support for Voice XML.

- Outbound Contact Management, which can manage outbound calling activities

and includes new features for handling "do not call" lists.

- Operational Analyst 6.1, a module that lets users monitor and produce reports on call-center activity, such as tracking average call length and call-flow patterns.

Each of these modules can now run on an IBM AIX, Sun Solaris and Windows-based server platforms. Users can choose which modules they want to install and run them on one server or on separate servers in different locations. Avaya says this could let a business extend IVR to multiple call-center sites by extending the application over an IP WAN.

The software will work with Avaya Definity ACDs, and TDM- and IP-based ACD hardware from Nortel and Aspect, two of Avaya's top competitors in the call-center market. ■

Q A

Dell

continued from page 19

actually can get more cost savings, and they are not outsourcing or 'de-skilling' their company in an area that they, frankly, are going to need in the future. I don't think you can find any company that has outsourced its entire IT infrastructure in the on-demand mode and been a leader in their industry.

How does Dell view on-demand technology, and how are you meeting demand for that with your customers?

We are meeting it with the standards, which say as you need more capacity you buy more thin, low-cost servers and you add capacity incrementally. The problem with on-demand is fundamentally you are buying a great big main-frame and paying for the portion you use. Someone eats the cost of that unused capacity somewhere. Basically, it's a strategy to sell big iron, because it is either going to cost the customer money or IBM money. We've seen companies go away from Sun systems because they had to buy huge capacities and fill it up over time. A much more efficient model is to buy just what you need and as you need more buy more thin servers with standard architectures that can handle all of your needs while you grow. The pay-as-you-grow method is more efficient for suppliers and for customers.

What are the factors that you look for in

markets in order to be able to enter them?

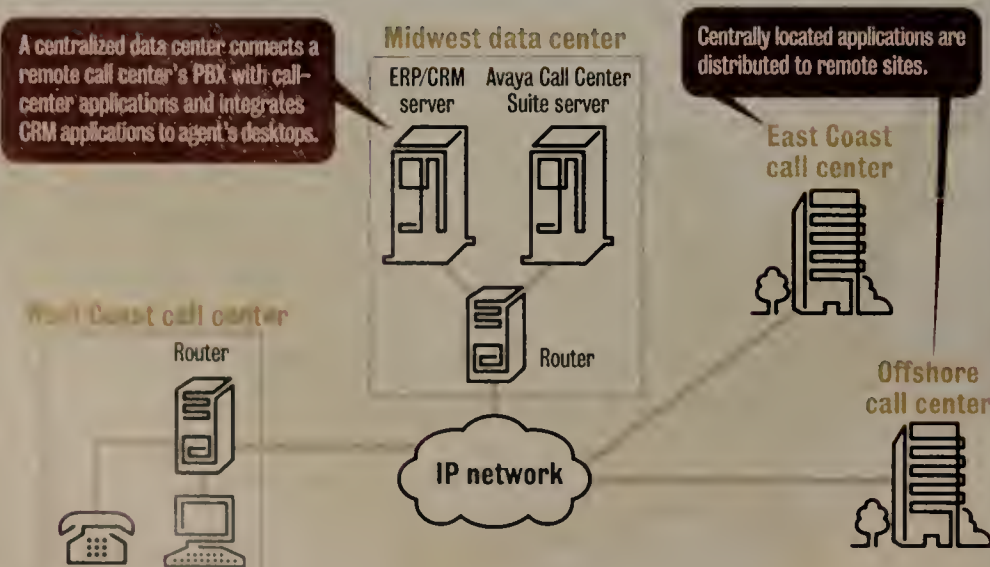
There are several things. One is the emergence of essentially a merchant component industry. You've got to start finding the movement from proprietary ownership of all the product to a merchant ownership where you can see suppliers making the molecular components that go into the product, rather than one company owning it all. The second thing we look at is a kind of umbrella profit pool, meaning a large enough profit pool that is worth collapsing, but still be profitable. Third, we have to look and see customers are requesting or suggesting that Dell participate in the marketplace so we have some customer pull on what we're going after.

Looking ahead three to five years from now, how will Dell be different as you respond to things that you're seeing in the market?

Well, we have a \$60 billion target for the company, or goal I should say, that we're about two years into a five- or six-year program. So far we're on track. That shows we would have only about 50% or less dependency on client business, and the rest would be in enterprise products, servers and storage, networking products, services and then software and peripherals, which is to a great degree printers and displays. So that is what we had envisioned. ■

Spreading the wealth

Avaya put its Call Center Suite of applications on independent servers, which lets features be distributed over IP.



More online!

Read more of Rollins' comments.

DocFinder: 8239





You're not
just looking at
a screen...

You're remotely
monitoring an
entire data center
over IP.



Only Avocent gives you complete Click and Connect™
control of your data center — all from a single screen

**Download your
FREE
KVM Tech Guide today!**

*Don't choose a
KVM switching system
without it!*

www.avocent.com/reality

Now you can see what's really happening in your data center. Avocent's DS Series lets you access, maintain and troubleshoot all your servers and serial devices over IP — no matter where you are, even over a browser. Authenticate once and control it all.

Get real, get the best KVM OVER IP solution available today. The Avocent DS Series.



Avocent

The Power of Being There.™



Take the lead.

Business keeps your team on the move and you need the best tools to stay ahead of the competition. That's why you need BlackBerry®. It's the best wireless enterprise solution both for users and IT departments. Advanced wireless handhelds help users stay connected to corporate data, email and even phone calls on the go.* BlackBerry Enterprise Server software provides IT departments with advanced security, centralized management and support for multiple wireless networks. And, the BlackBerry Enterprise Server v3.6 introduces breakthrough features that provide the ability to wirelessly access your firm's existing corporate data. Get BlackBerry and empower users without compromising IT requirements. It will help keep you in the lead.




BLACKBERRY

WWW.BLACKBERRY.COM

© 2003 Research In Motion Limited (RIM). All rights reserved. BlackBerry is an end-to-end wireless solution developed by RIM. RIM, BlackBerry, the BlackBerry logo and the "envelope in motion" symbol are trademarks or registered trademarks of RIM. *Check with your service provider for availability.

Enterprise Applications

■ PORTALS ■ MESSAGING/GROUPWARE
 ■ E-COMMERCE ■ SECURITY
 ■ MIDDLEWARE ■ DIRECTORIES
 ■ NETWORK AND SYSTEMS MANAGEMENT
 ■ WEB SERVICES

Takes

■ A new version of the **Ghost** computer cloning and restoration product from **Symantec** adds features that deploy software patches and reduce the network bandwidth used by the program. Announced last week, Ghost 8.0 Corporate Edition finds the software evolving from a back-up and recovery product into a configuration and patch-management platform. One new feature is remote management that lets administrators clone Microsoft, Windows NT, 2000 or XP machines and send out software hot fixes or operating system configuration changes to multiple workstations at once, Symantec says. To simplify file deployment, a new file-transfer multicasting feature allows the same file to be pushed out and run on multiple workstations at the same time. Bandwidth-throttling features let companies use the multicast feature without taking up too much of the network's available resources, the company says. Symantec also included features to limit the effect of system cloning and restoration on corporate networks. Unlike earlier versions of Ghost, Version 8.0 has the ability to create staging areas on local machines. Those enable administrators to store local copies of user profiles, software fixes or even entire "images" of the computer-operating environment, Symantec says.

■ **IBM** has added a version of its content management software to its Express line of products, offering smaller organizations and departments a tool for managing digital content such as documents and image files. **DB2 Content Manager Express** is available worldwide for \$9,375 per server and \$1,063 per concurrent user. The stand-alone software handles content storage and offers version and permissions controls, search, organization and workflow management features. DB2 Content Manager Express is currently only available for Windows servers, but versions supporting Linux and other operating systems are in the works.

IP net mgmt. could get easier

■ BY DENISE DUBIE

A proposed standard under construction at the Internet Engineering Task Force promises to extract more traffic statistics from corporations' network gear, which proponents say will help them develop usage-based billing and more easily spot security breaches.

IP Flow Information Export (IPFIX), expected to be in final draft by early next year, defines a method for routers and switches to export traffic-flow data to management systems. If adopted, the export standard would be included in network gear from Cisco, Nortel, Riverstone Networks and others. IPFIX-compliant management products then would be able to collect and analyze the traffic-flow data and correlate it with other network and application performance metrics in a management console.

Proponents say IPFIX-compliant gear will capture, store and deliver all traffic-flow data that crosses corporate routers and switches. Commercial products and protocols such as SNMP today can extract part of the traffic-flow data stored on network gear, but IPFIX would automatically package the raw data and send it to a collection point for correlation. In many cases, traffic-flow data can be lost on network gear because routers and switches don't have the memory to save the data. After the data is exported, management software could dissect the data, which today is difficult to gather and maintain.

"IPFIX is the foundation technology by which the raw data is transmitted between the network gear and a collector for subsequent analysis," says Dave Plonka, co-chair of the IPFIX working group for the IETF. "Flow-based measurements are a sweet spot between mere aggregate counters and complete packet traces."

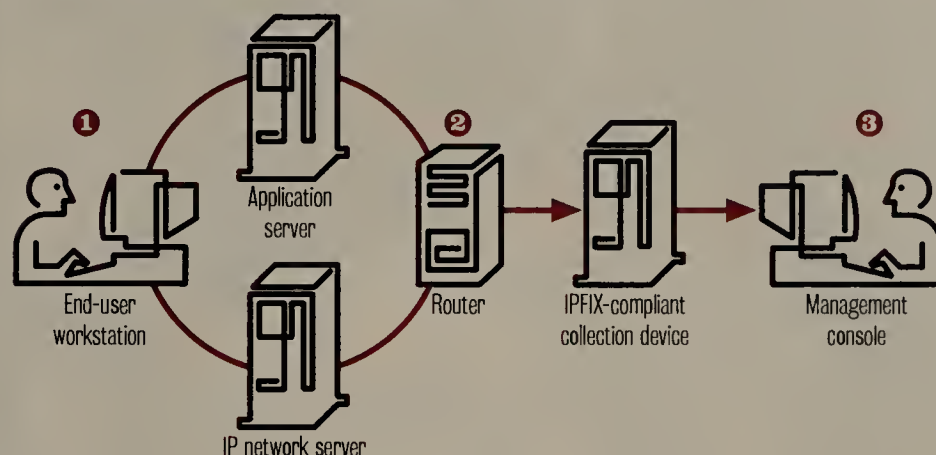
To export data, routers present network traffic flow based on seven fields: source IP address; destination IP address; source port; destination port; Layer 3 protocol type; type-of-service byte; and input logical interface. If all seven fields in two packets match, the packets belong to the same flow.

IPFIX is expected to provide the format by which IP flow data can be transferred from the gear to a management collection point. Because IPFIX implementations will include templates, customers could define multiple templates for how various data should be exported. IPFIX-enabled devices

See IPFIX, page 28

Mining routing data

IP Flow Information Export (IPFIX) proposes a standardized, more-reliable method for exporting IP traffic-flow and application-performance data from routers and switches to help companies better-understand how to manage their networks.



1 End-user application requests generate packets that cross an IP network. Data such as source and destination IP address, source and destination port, and Layer 3 protocol type can help network managers analyze traffic flows.

2 IPFIX-compliant equipment such as routers and switches collect and store the data based on user-defined fields built into the IPFIX template. The router will "push" the data to an IPFIX-compliant software or hardware collection device, such as management software or a network probe, before it expires on the device.

3 The data collected using IPFIX is more detailed than it is with traditional methods, proponents say, making it possible for network managers to use the data for usage billing and chargeback, traffic engineering and detecting security breaches, such as denial-of-service attacks.

Start-up takes sign-on tasks out of users' hands

■ BY JOHN FONTANA

Start-up software vendor Version 3 is putting a twist on single sign-on with software that lets companies ease end-user and network administrator access to applications and services and cut expensive, help desk calls for password resets.

The company's Simple Sign-On runs on top of Microsoft's Active Directory and taps into user and application data stored in the directory. Instead of users having to remember multiple passwords for the applications they access and enter those credentials into a logon screen, Simple Sign-On stores encrypted usernames and passwords, and provides end users with desktop or start menu icons that open applications.

When users want to access a network or Web-based application, they click on the icon. Simple Sign-On handles the logon in

the background using an agent deployed on the desktop, and the user never sees the logon screen. The software supports automatic logon for terminal and mainframe sessions, and can be used to control administrator access to Windows servers, which means administrative passwords can be protected.

Users don't have to remember policies, such as requirements to change passwords every 30 days, and administrators can use more-complex passwords to protect access to applications. According to Meta Group, automating password administration can save a 10,000-user company \$648,000 per year.

"We use this to ease our management burden and make life easier for our students," says Ray Midgett, assistant director of telecommunications for the Charlotte

See SS0, page 18

Middleware is Everywhere.

Can you see it?





IBM

1

5

4

KEY

1. Instantly admitting patient.
2. Immediately processing claim.
3. Automatically approving procedure.
4. Constantly tracking treatment.
5. Directly assessing costs.

MIDDLEWARE. It's what on demand business demands. And middleware is IBM software like DB2®, Lotus®, Rational® and WebSphere® that develops, integrates and manages your applications and systems. Everything is efficient. Seamless. Across the board. Across platforms. Microsoft®. Oracle. Sun. You name it. IBM's open middleware can connect it: It's instant business benefit. Instant customer satisfaction. On demand. **@business on demand™** Go to **ibm.com/software/integrate**

IBM, DB2, Lotus, WebSphere, the e-business logo and e-business on demand are registered trademarks or trademarks of International Business Machines Corporation in the United States and/or other countries. Rational is a trademark of International Business Machines Corporation or Rational Software Corporation in the United States, other countries or both. Microsoft is a registered trademark of Microsoft Corporation in the United States and/or other countries. Other company, product and service names may be trademarks or service marks of their respective owners. © 2004 IBM Corporation. All rights reserved.

'NET
INSIDERScott
Bradner

What are regulators good for?

one that regulations and regulators are needed. Only a few people think we do not need regulations designed to protect life and health by making sure that restaurant food or prescription drugs will not kill you.

These people think the market will punish restaurants that kill their customers and that regulations are not needed. (I exaggerate only a little bit — this is exactly the argument I have heard about drug regulations.)

But in other areas, it is less clear. A lot seems to be written about the purpose of regulations — I got 5.6 million hits on Google for “purpose of regulation,” but the rationale for regulations still eludes me in much of the telecom space. A number of state regulators seem to be determined to show that regulations are not only no longer needed, but are a clear and present danger to innovation.

A U.S. district court stopped Minnesota — at least temporarily — from trying to regulate voice-over-IP (VoIP) provider Vonage

as if it were a traditional telephone company. But regulators in California say they are not backing down from their demand that six VoIP companies submit to being regulated as telephone carriers.

When I wrote recently about the Minnesota case (www.nwfusion.com, DocFinder: 8227), I got some reader response disagreeing with my opinion. A few felt it was reasonable to demand that VoIP providers offer services such as enhanced 911 and ensure high-quality voice. I strongly disagree. We would have no cell phones today if wireless carriers had to provide enhanced-911 functionality before they could have started to offer their service. And it's not clear that we could ever have cell phone service if the providers had to guarantee high voice quality. Some people might complain that I'm not being fair because the E911 and quality regulations refer to the basic phone service for a home and not an add-on service like cell phones. But that argument is becoming

less true as more people decide to use a cell phone as their only phone (DocFinder: 8228). About the only clear issue to me is that of taxes. You pay taxes for phone services; you do not (yet?) pay them on instant messages, even if an instant message contains voice.

I can see a rationale for a regulator to insist that a VoIP provider be clear on what services it does offer, but I have a hard time understanding what other value regulators add. Telecom regulators are a vestige of an era of monopoly telecom carriers. They should only ensure that those monopolies do not kill their competitors, then the regulators should fade away.

Disclaimer: Harvard does not understand the concept of “fade away,” so the above must be my own opinion.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Fujitsu Siemens, Oracle team on middleware

■ BY PETER SAYER

Fujitsu Siemens Computers and Oracle plan to pool some of their software resources to help big businesses link legacy data to modern systems with Web interfaces.

The companies jointly will fund development of a software suite combining Fujitsu Siemens' openSeas middleware with Oracle Application Server 10g.

The Oracle server will replace the existing Java server in the openSeas suite, the companies

announced last week at the OracleWorld conference and exhibition in Paris.

Fujitsu Siemens is Oracle's biggest reseller in Europe, according to Oracle executives. It also resells software from other vendors, including SAP, and sells its own PCs and mainframes in Europe, the Middle East and Africa.

Its openSeas software can be used to Web-enable applications running on Unix, OS/390, AS/400 and its own BS2000/OSD operating system for mainframes,

among other platforms.

The companies will cross-license one another's technology and work together on marketing and sales efforts to push the platform to big-business users, he says. The companies have yet to announce pricing.

As a result of the partnership, Oracle's Java application server will replace that of Fujitsu Siemens in the openSeas suite within the next year, but Fujitsu Siemens plans to maintain its software for existing customers for at least five years, the company says.

Meanwhile, Oracle's application server will adopt software hooks offered with openSeas' Java server for linking to legacy applications, effectively merging the functionality of the two products.

Oracle and Fujitsu Siemens plan to merge the Oracle Application Server and openSeas software platforms over time, Oracle says.

Sayer is a correspondent with the IDG News Service's Paris bureau.

IPFIX

continued from page 25

then would package the data as defined and send it to IPFIX-compliant collection devices, either network management probes or a server loaded with network management software.

Mining the traffic flow and understanding more packet data could reveal details about how an application uses network devices, how routers respond to requests and which users make the most demands. That data could let network managers bill for IT services based on usage.

“Collecting raw packet data can reveal to network managers if there are different routes or links being used in ways they didn't realize or if there are better ways to route the traffic,” says Paul Kohler, technical marketing engi-

neer in the Internet Technologies Division at Cisco. He says IPFIX also could alert network managers to potential security breaches and help them fill any security holes. “It can go beyond just noticing if a link is down; it can identify flows that are the source of a problem.”

Benoit Claise, a technical leader at Cisco, and Kohler are working with the IETF on the IPFIX specification, partly because its roots are in Cisco. IPFIX is based on Cisco's NetFlow Version 9 data-export protocol. (Cisco customers usually use NetFlow Version 5.) NetFlow comes with Cisco gear and can be enabled or disabled.

Customers could turn NetFlow on to collect more specific data on traffic flows and track the busiest applications. The same network managers might choose to turn NetFlow off and disable

the protocol because the amount of data it across the network can bog a router down, consume bandwidth when it's transmitted and get lost when the device runs out of storage capacity.

“NetFlow collects a lot of data, and lets you look deep into the packet, but you don't know how long it will be before the network management software will ask for that data,” Kohler says. “NetFlow follows a push model, and sends the data out because without a lot of memory on a switch, you can just lose that intensive data.”

Yet NetFlow resides on Cisco gear and the IETF wants to develop a standard for heterogeneous networks. Like SNMP and Realtime Traffic Flow Measurement (RTFM), the IETF wants the IPFIX working group to deliver a more-efficient way to export data to management systems.

Plonka, also a member of the Network Services group in the Division of Information Technology at the University of Wisconsin at Madison, says standards such as SNMP and RTFM can be used in such a way that would deliver the same results as IPFIX. For example, SNMP polls network devices and collects management data while RTFM measures traffic flows. Those working on IPFIX say it could provide one standard out of what now is cobbled together by enterprise network managers.

“[Our] long-term goal is to move from the present five standards toward just one,” says Nevil Brownlee, co-chair of the IPFIX working group for the IETF and an Internet researcher for the Cooperative Association for Internet Data Analysis at the University of California San Diego. ■

SSO

continued from page 25

Mecklenburg Schools in Charlotte, N.C. “We have a lot of applications that require authentication, and the kids can't remember their usernames and passwords,” Midgett says. His staff had tried to write scripts to build shortcuts to the applications but it became a burden.

Midgett uses the Connection Management feature of Simple Sign-On to map printers and network drives for end users, a process that previously he did with logon scripts.

Simple Sign-On also has an application monitor that can automatically log out users whose machines sit idle for a certain amount of time, and includes controls to lockdown desktops to prevent access to features such as games. The software also can support the addition of a second form of authentication for application access, such as a smart card or biometrics device.

Simple Sign-On is managed through the standard Active Directory administrative console. The software includes a simple provisioning capability that permits creation of user accounts and includes a provisioning API so Simple Sign-On can plug into a full-blown provisioning application. Also included are logging and auditing tools to monitor application and content access.

Simple Sign-On, which competes with products from vendors such as Passlogix and Novell, costs \$49 per seat. ■

Middleware is Everywhere.

Can you see it?

3

2

1

5

4

IBM

KEY

1. New design already tested.
2. Suppliers already linked.
3. Procurement already automated.
4. Blueprints already updated.
5. Engine all ready for takeoff.

MIDDLEWARE is what on demand business demands. And middleware is software like IBM WebSphere®. Using an open and scalable foundation, WebSphere lets you swiftly respond to change. Applications are easily updated, tested and deployed. Lead time is shortened. And everything clicks, regardless of platform. WebSphere delivers it all. On the money. On demand. @business on demand™ at ibm.com/websphere/middleware

WebSphere

Special Focus

APPLICATIONS: Keeping junk off your network.

Web filtering packages protect and serve

■ BY ELLEN MESSMER

What do pornography, shopping, watching sports, gambling and trading stocks online have in common? They're all activities available through Web sites that most businesses don't want employees indulging in. To enforce those rules, corporations are increasingly turning to Web-filtering packages that block access to forbidden sites.

A filtering product is typically installed at the Internet perimeter as a stand-alone gateway, multi-function appliance or as software added to a firewall or proxy server. Last year, companies bought \$270 million worth of Web-filtering software, up 34% from the year before, according to IDC. There are at least a dozen vendors selling this type of filtering product, with WebSense and SurfControl leading the market with about 20% share each. Third- and fourth-ranked Secure Computing and Symantec each hold about 6%.

Web filtering is attracting start-ups. Webwasher AG, a Siemens spinoff, doubled growth in two years to capture a 3% share — about 4,000 corporate customers.

The Web-filtering market is poised for growth, according to IDC, which forecasts a \$364 million market by year-end and \$893 million in 2007.

In anticipation of such a rosy scenario, mergers in the Web-filtering arena are coming at a fast clip, too. In just the past few months, Secure Computing acquired N2H2, which held about 4% of the market. Secure-messaging vendor ZixCorp bought Web-filtering vendor Elron, which has 4,600 customers, to get into Web filtering. And systems management vendor NetIQ bought content-filtering vendor Marshal Software.

Content battle

For customers, Web filtering is increasingly viewed as just part of the larger content-filtering battle that includes fighting spam, computer viruses and peer-to-peer applications that eat up bandwidth, and that cause even more trouble when left unchecked.

Some companies say one of their main reasons for filtering is to protect employees from going to Web sites where spyware, peer-to-peer applications or potentially harmful plug-ins could be downloaded.

"I hate Grokster, Gator, Hotbar and Livingwaterfall, to name a few," says Paul Grulke, director of information services at law firm Arnall Golden Gregory LLP.

The firm uses NetIQ's WebMarshal filter to try to stop unauthorized software downloads from invading the 400-employee company in Atlanta.

While no one thinks content filtering for spam or viruses is a bad idea, putting high-visibility gateway controls to use on the Web can lead to employee resentment, many administrators say. And Web filtering entails establishing a Web appropriate-use and review process that is likely to include upper management, the human resources department and the legal division working in conjunction with the IT department.

Washington Hospital has long published an appropriate-use policy for the Web after periodic reviews by its management council, which includes senior IT staff and business executives, says Bob Venable, IT director at the Fremont, Calif., hospital. Employees must sign

the hospital's acceptable-use policy, which prohibits online shopping, pornography, gambling and "personal surfing," he says.

"Only one person has unlimited access, the director of community relations, because of his work," Venable says. The hospital, which has about 1,000 employees, decided to deploy filtering to monitor and block use of the Web "because the policy was being ignored, mostly from the late-night shifts," he points out.

Once Washington Hospital set up a gateway using SurfControl's WebScout software, the unauthorized Web surfing "instantly stopped," he adds.

Charter One Bank, which has 8,000 employees, created Web-surfing policies it dubs "Internet plain," "plus" and "super" that are enforced through the corporate SurfControl filter running on a Microsoft proxy server, says Eric Bowers, Internet security administrator at the Cleveland bank.



“When we started Web filtering three years ago, everyone was calling us dictators.”

Eric Bowers

Internet security administrator,
Charter One Bank

Shopping sites and adult content are blocked in general, and "plus" allows sports feeds and news feeds, mainly for the marketing department. "Super" — limited to three individuals — allows unfettered Internet access.

"When we started Web filtering three years ago, everyone was calling us dictators," Bowers says.

But one good reason to block Web access is that people are hit by spammers after visiting Web sites, Bowers says, because the sites capture their e-mail address.

Unwanted consequence

But being the IT worker associated with monitoring and blocking access to the Web can bring unwanted attention inside any organization, warns Sean Geist, network engineer at New York City property management firm Rudin Management. About a year ago, Rudin Management started using WebSense to monitor and block some Web use by about 300 employees.

Geist says watching over the WebSense filtering gateway is just one thing he does in addition to maintaining the firewall, routers and switches, which few people even notice. But they quickly found out he does the Web filtering. "They got to know me as the person who blocks their access," Geist notes. "It can be an awkward position."

"It feels funny when I'm filtering my boss," Geist says. "But he understands."

It's more difficult when fellow employees beg Geist to change the monitoring settings on the Web filter.

"People try to get me to lift the controls, and I just ask them to 'please don't shoot the messenger.'" On rare occasions, executives might want to know what someone is doing on the Internet, and it's his job to tell them.

Geist says configuring policy settings and updating user information is simple with WebSense Enterprise 5.0 because the Web filter works with Microsoft's Active Directory, where user information is stored. Rudin Management already was using Active Directory, so this means Geist no longer has to maintain two directories, as he did with the earlier version of WebSense.

Secure Computing, a large Web-filtering software vendor, sells most of its SmartFilter software through partnerships with vendors such as Blue Coat, Cisco, Computer Associates, Network Appliance and Ositis. These vendors support SmartFilter inside their multi-purpose security appliances, firewalls or intrusion-detection products.

Multi-function gateways

Symantec recently released multi-function Gateway Security appliances that include Web filtering. Some multi-use appliances are designed to support other vendor products. The Crossbeam gateway appliance, for example, can run SmartFilter or WebSense as well as third-party anti-spam, intrusion-detection and firewall applications.

"The main attraction in using Crossbeam is that it is multi-purpose," says Jim Allen, global network manager at St. Jude Medical Center, which is filtering pornography, sports and gambling for about 3,500 employees at the Fullerton, Calif., hospital. "If you weren't using a single appliance, you could end up with a complex infrastructure for all these functions."

Paul DeBernardi, Secure Computing's director of product marketing, says some customers do buy SmartFilter and add it to Microsoft's proxy server or run it on a Linux server. SmartFilter also plugs into the Check Point firewall.

While multi-function products proliferate, vendor alliances abound in the Web filtering world as well.

SurfControl's WebFilter software is the Web-filtering component in the Nokia security appliance. WebFilter also runs on the Check Point firewall and Novell's BorderManager. And the SurfControl filtering software can be synchronized with Microsoft Active Directory, Novell's eDirectory or a Lightweight Directory Access Protocol directory so that user information doesn't have to be maintained in a separate directory.

Jim Murphy, product marketing manager at SurfControl, acknowledges that it is a challenge to keep up with the Web to categorize its pages into groups, such as pornography, sports or gambling, which customers might want to block. SurfControl dispatches so-called Web crawlers that skulk over the Web pages constantly to update SurfControl's content listings daily.

"There are over 5 million URLs and a billion Web pages," Murphy says. "The Web is constantly growing, so it's impossible to have everything up to date every minute." ■

Middleware is Everywhere.

Can you see it?



IBM

KEY

1. Verifies insurance on the spot.
2. Files digital claim in an instant.
3. Approves estimate at the site.
4. Orders new bumper at the scene.
5. Receives settlement in a snap.

MIDDLEWARE unifies the on demand world.

DB2

On demand. And middleware is software like IBM DB2 Content Manager. A complete and open solution that easily manages and leverages information from almost anywhere. Even content like video and scanned images is easily and securely accessed. It's how responsiveness increases, productivity soars and knowledge becomes power. @business on demand™ Go to ibm.com/db2/middleware

IBM, DB2, IBM e-business logo and e-business on demand are registered trademarks or trademarks of International Business Machines Corporation in the United States and/or other countries. © 2003 IBM Corporation. All rights reserved.

A black and white photograph of two Enterasys Matrix N-Series network switches. A green chameleon is perched on top of the left switch, and a yellow chameleon is perched on top of the right switch. The switches are rack-mounted and feature multiple ports and labels. The background is a light-colored wall with a grid pattern.

Built-in adaptability.

From the **Edge** to the **Core**

The Matrix™ N-Series Switch

Now with Gold and Platinum modules to
better meet your changing needs.

Look to the Matrix N-Series for superior performance, security and manageability. The new **Matrix N-Series Gold Distributed Forwarding Engine (DFE)** modules are ideal for cost-effective edge deployments supporting industry-leading 10/100 and 10/100/1000 densities with a rich feature set. For enterprise-wide connectivity, there are the **Platinum DFEs**, the first IPv6-capable modules. Added features include multi-user authentication per port for greater control over network access and applications. The Gold and Platinum DFEs operate in both Matrix N-Series chassis and are key components of any *Business-Driven Network™*. Call 1-877-423-8074 or go to enterasys.com/nw/n-series

ENTERASYS
NETWORKS®

Reading someone else's
copy of Network World?

Apply for your own
Free subscription today.

subscribenw.com/b03



Free subscription
(51 Issues)

To apply online go to
subscribenw.com/b03

subscribenw.com/b03

**Apply for your
free
subscription today!**
(A \$255 value - yours free)

Service Providers

■ THE INTERNET ■ EXTRANETS ■ INTEREXCHANGES AND LOCAL CARRIERS
■ WIRELESS ■ REGULATORY AFFAIRS ■ CARRIER INFRASTRUCTURE DEVELOPMENTS

Q & A



Head of AT&T business sales talks turkey

Chris Rooney was named president of business sales at AT&T in April after having joined the company in February 2002 as head of its government services division. Rooney recently met with Network World Senior Editor Denise Pappalardo to discuss contract negotiations, the competitive landscape, customer satisfaction and how to increase revenue.

Customers have been saying AT&T is not offering competitive pricing until users are far into the contract-negotiating process. Isn't AT&T creating bad blood through this?

If there is one message I deliver to every field sales department it is to double our speed in all things. And it speaks to your point. We have to improve the speed with which we come to these conclusions with our customers, because that time can create dissatisfaction. When I first joined the sales team and we looked at our processes, we heard similar comments.

How is your department trying to achieve that goal?

We brought in Donna Henderson, who runs what I call the sales enablement group. Donna's job is to improve the negotiating process. She's in that position because she was running one of our sales regions in Dallas and was working with customers every day. We had to get someone in to do this job who is sensitive to customer issues and have them go through a methodical remediation process to ensure we can be more responsive to customers in this environment and be less difficult to do business with.

Has AT&T fully taken advantage of MCI's weakened position?

Our effort every day has to be full-out. I may be termed old-school, but I believe

that an organization has to function at a high-performance level all the time. That may come from my 20 years in the Marine Corps.

I come to play every morning at 7 a.m. I expect everyone here to come and play, and take advantage of every situation that is favorable. Some might deem MCI's bankruptcy as a favorable situation. But you have to be equally aware that there is RBOC entry in our market. We have to work like the dickens to overcome that.

What were your biggest challenges as you took over?

Your first challenge in any new job is to understand the environment and the people in that environment. The challenge there was to begin to know the people in the team and the types of relationships they've developed with the customers. It's a big team of about 7,500 folks across 50 states and the world.

Did that process result in a lot of change within the sales team?

I probably have the best sales department with some of the best sales leadership I've ever seen. I've been equally pleased with the relationships they've built with our customers.

Some users have complained they are working with green sales folks. Are you saying there hasn't been much turnover recently?

No, there has not been a large amount of turnover. We have been trying to ensure that we build a strong relationship with each customer. We have been introducing new personnel into customer situations on a dedicated basis. This is part of a model called total account management that we introduced to look at each customer's needs.

Has AT&T changed how its salespeople are compensated since you joined?

Compensation programs are done on an annual basis, and I joined in April. You don't want to change a person's basis of compensation in the middle of the year. Going in to the next calendar year, we are absolutely committed to ensuring an alignment between the objectives of the company and the objectives of individual salespeople.

We're focused on growing revenue of our existing customer base, and we want to continue to grow with new customer acquisitions. Those objectives are aligned with the company's goals of revenue growth and profitability.

See AT&T, page 36

Short Takes

■ **EarthLink** is expanding the reach of its **Small Office DSL** service from 16 to 81 markets. The ISP is teaming with Covad Communications to expand its DSL reach in Baltimore; Charlotte, N.C.; Kansas City, Mo.; Minneapolis; New Orleans; Orlando; Philadelphia; Portland, Ore.; Salt Lake City; San Antonio, Texas; and San Diego. EarthLink's service offers small-office users an asymmetrical DSL service that supports 1.5M bit/sec downstream and 384K bit/sec upstream for \$80 per month.

■ **AT&T Wireless** last week began selling **Motorola's MPx200**, the first smart phone based on Microsoft software to be sold in the U.S. The MPx200 is also the first Microsoft-based phone to be offered by a major handset maker, which analysts have said might help **Microsoft** establish its long-sought credibility in the mobile phone market.

Microsoft's entry onto the U.S. market comes a year after it introduced the world's first Windows Powered Smartphone in the U.K., manufactured by Taiwan's High Tech Computer Corp. Since then, Microsoft Windows Mobile phones have been introduced in several European and Asian countries.

Cisco enhances MPLS software for Layer 2

New line card lowers cost of metro Ethernet deployment.

■ BY JIM DUFFY

Cisco recently announced an addition to its Multi-protocol Label Switching software designed to provide a specific amount of bandwidth to any type of Layer 2 traffic destined for an IP core.

The software — called **IOS MPLS Bandwidth-Assured Layer 2 Services** — combines the company's Any Transport over MPLS (AToM) code with MPLS traffic engineering and quality of service (QoS). This lets service providers offer managed

intranets, private voice-over-IP networks, intranet multimedia, networked commerce, 3G wireless and voice trunking services to their Layer 2 access subscriber base, Cisco says.

The software also improves MPLS Layer 2 functions to facilitate network convergence, and includes MPLS Fast Reroute for AToM circuits for enhanced resiliency, Cisco says. QoS prioritization is delivered via IP Differentiated Services bits, while MPLS traffic engineering is designed to

See Cisco, page 36





Find out how to build upon the Broadcom® chips inside your devices to create a secure high-performance wireless network. Download our new white paper "Practical Strategies for Deploying Wi-Fi® Clients" now at www.networkworld.broadcom.com/wireless



**YOU'VE BEEN WAITING
FOR THE NEXT GENERATION OF NETWORKING
AND ALL THIS TIME, IT'S BEEN RIGHT THERE WAITING FOR YOU**



Within your notebooks, PDAs and networking gear are chips that enable you to more securely unleash the full power of high-speed wireless networking. When Dell®, HP®, palmOne® and Sony Ericsson® are looking for best performance, they turn to Broadcom®. In fact, our 54g™ wireless LAN chips are available in over 95% of major notebook brands offered with 802.11g.¹ And with Broadcom you can expect interoperability among 802.11a/b/g networks and powerful security for your wireless LAN, with CCX, WPA, and AES technologies built in. Whether you're on a wireless PAN, LAN or WAN, Broadcom solutions ensure the devices you use today—and those you add tomorrow—will connect reliably, seamlessly and securely.

EYE ON THE CARRIERS

Johna Till Johnson



This time merger activity isn't madness

Networks, which offers broadband access and managed IP network services, acquired TManage, a leading provider of managed access, VPN and security services.

Why the acquisition spree? And what's the effect on network executives?

One thing that the acquiring companies have in common is that they're not your father's telecom providers. In other words, each one has carved out a value proposition and a service niche that's markedly different from that of legacy telcos.

Internap's claim to fame is the ability to route traffic effectively and cost-effectively across the Internet, making on-the-fly decisions about which routes to choose based on the users' priorities and concerns.

Gric specializes in offering transport-independent connectivity services to remote and mobile workers (read: Wi-Fi, DSL and Ethernet).

Megapath focuses on providing broadband services to remote offices.

It's worth noting that these nontraditional telcos have not only survived the telco downturn — they've prospered.

A second noteworthy point is that they're all strategic acquisitions. That is, they all involve enhancing and deepening the acquiring company's core value proposition. I admit this statement sounds like a blinding flash of the obvious — after all, why would a company ever make an acquisition that wasn't strategic?

Too often over the past few years, we've seen "scavenger" acquisitions — one player purchasing the assets and carcass of a former competitor for pennies on the dollar. And many mergers (think MCI/WorldCom) often reflected the egos of their management teams more than any strategic plan.

Here, the acquired companies have customers and value propositions of their own, and the acquiring companies have stated publicly that they hope to retain the management teams and exploit the synergies. Whether they can execute on these promises is another question — but at least attempting to do so says something about the state of the market.

So what's the effect on IT executives? Generally positive. Customers of the

It's worth noting that nontraditional telcos have not only survived the downturn — they've prospered.

acquired companies can have increased confidence that their chosen vendors will stay in business, thanks to the additional financial strength of the merged companies. IT executives who are considering using any of the services by acquiring firms or through acquisitions will find the combined offerings stronger and more fully functional. And overall, the range of telecom choices is getting wider.

Johnson is president and chief Research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Q A

AT&T

continued from page 33

What do you mean by total account management?

It's an effort to ensure we are appropriately introducing our services, managing, selling and servicing customers — from a customer-care perspective to how that user's services are installed, maintained and billed.

In a recent survey, AT&T's customer-service ranking was lower than it had. How do you address these issues?

Customer satisfaction is a very critical barometer in our business. There are a lot of surveys done by media and consulting groups, and we have our own. We bring all of those together and cross-reference them on an ongoing basis. We have a joint undertaking between the marketing, sales and care departments to improve that overall satisfaction rating. Right now areas of focus in sales are around the proposal and contracting processes, and the responsiveness of our sales team. They are top of mind with me and they are top of mind with my team.

Who are AT&T's biggest competitors, the other interexchange carriers or the regional Bell operating companies?

I see them all as very worthy and very challenging competitors. RBOC entry has created a new challenger in our markets. And depending on location and size of a customer contract, the RBOCs are an equal or stronger competitor today than you might call a traditional IXC. You can see that in certain market share statistics. SBC, BellSouth and Verizon are all in the business of long-distance and each has a strong position in certain markets.

We're hearing that AT&T sales reps are pushing hard to sell local services with nearly all bids. What's behind this?

We've made a great investment in local. We're in 100 major cities. We have a great local service. We offer a competitive alternative that is very favorable for our customers and prospective customers. We want to service our customers' full needs from end to end. Users only want to deal with one vendor, not five local service providers plus AT&T. I hope we're talking with all of our customers about providing local service. ■

Cisco

continued from page 33

better utilize bandwidth by steering traffic onto distinct network paths.

Together these technologies emulate the traditional Layer 2 ATM/frame relay infrastructure and let these services migrate to an IP/MPLS network, Cisco says.

Initial reviews positive

One analyst viewed Cisco's Bandwidth-Assured Layer 2 Service rollout positively.

"Cisco's solution delivers frame relay committed information rate or ATM constant bit rate type of services on IP/MPLS backbones, which is a step in the right direction for the industry," says Rolf Schonhowd, senior analyst at Current Analysis, in a report on the new software. "[It] solves the customer need to guarantee the QoS whatever access technology is used through interworking."

Cisco did not identify a customer that uses the feature now, Schonhowd notes. Although the Bandwidth-Assured Layer 2 services software helps differentiate Cisco routers from those of Avic, Juniper, Laurel and Redback, Cisco continues to charge a premium for its products, he says.

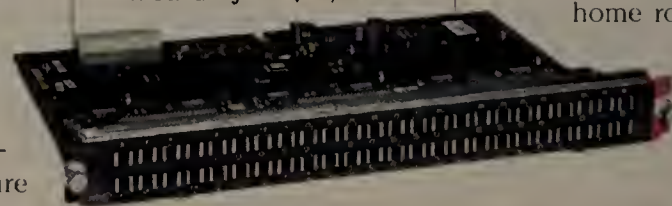
Bandwidth-Assured Layer 2 Services is shipping now in Cisco IOS Software Releases 12.0(24)S,

12.0(25)S and 12.0(26)S. The company says 200 service providers worldwide have implemented its MPLS code since 1999, with half of those having

Betting on Ethernet

Features of Cisco's new line card for the Catalyst 4500 switch:

- Designed for lower-cost metro Ethernet deployments.
- 48 bidirectional 100M bit/sec ports.
- Utilizes one strand of single-mode fiber.
- Adheres to IEEE 802.3ah "First Mile" standard.
- Supports 4500's DHCP Snooping, Dynamic ARP Inspection and IP Source Guard security features.
- Expected to be available in January for \$20,000.



done so only in the past year.

Cisco also unveiled a line card for its Catalyst 4500 switches that the company says lets service providers build lower-cost, fiber-based metropolitan Ethernet networks.

The Catalyst 4500-series 48-port 100Base-BX10-D Bi-Directional Fast Ethernet line card operates

over one strand of fiber, providing savings in fiber, cable management and other installation costs, as well as long-term operating expenses, Cisco says. The line card also supports the IEEE 802.3ah standard for Ethernet point-to-point and point-to-multipoint connectivity in first-mile access applications.

The Bi-Directional Fast Ethernet line card costs \$20,000 and is expected to be available in January.

Cisco also announced three security enhancements to its Catalyst 4500 Ethernet switch: Dynamic Host Configuration Protocol (DHCP) Snooping; Dynamic ARP Inspection; and IP Source Guard. These features help prevent subscribers from masquerading as the network's DHCP server, router gateway and other users, Cisco says.

DHCP snooping prevents malicious and misconfigured home routers from taking over a service provider network's DHCP service. IP

source guard ties users to their allocated IP address, and dynamic ARP inspection stops subscribers from becoming the router gateway. ■



View from The Edge

Subscribe to our free newsletter.
DocFinder: 5434 www.nwfusion.com

THE ANSWER IS X



▲
**HOW MUCH DO YOU
TRUST YOUR BACKUP SOLUTION?**

INTRODUCING THE PX720. ►

▼
THE ANSWER IS X.



**QUANTUM
PX720**

► **Win a 17" flat
screen monitor!**

And download the
*Tape Automation Bill of
Rights* white paper!

Enter code ADV067 at
www.theanswerisX.com

Data protection you can trust. In a world of uncertainty, one thing you shouldn't have to worry about is protecting your data. Now, Quantum gives you one less thing to worry about – **The Answer is X.** The new PX720 sets the standard in tape library reliability, flexibility, growth and value. Unlike the competition, the PX720 raises the bar by including redundant power and cooling, library management and installation, and also delivers the highest density per square foot – *all at no additional cost.* For the complete answer, call 866-827-1500, or visit us at www.theanswerisX.com.

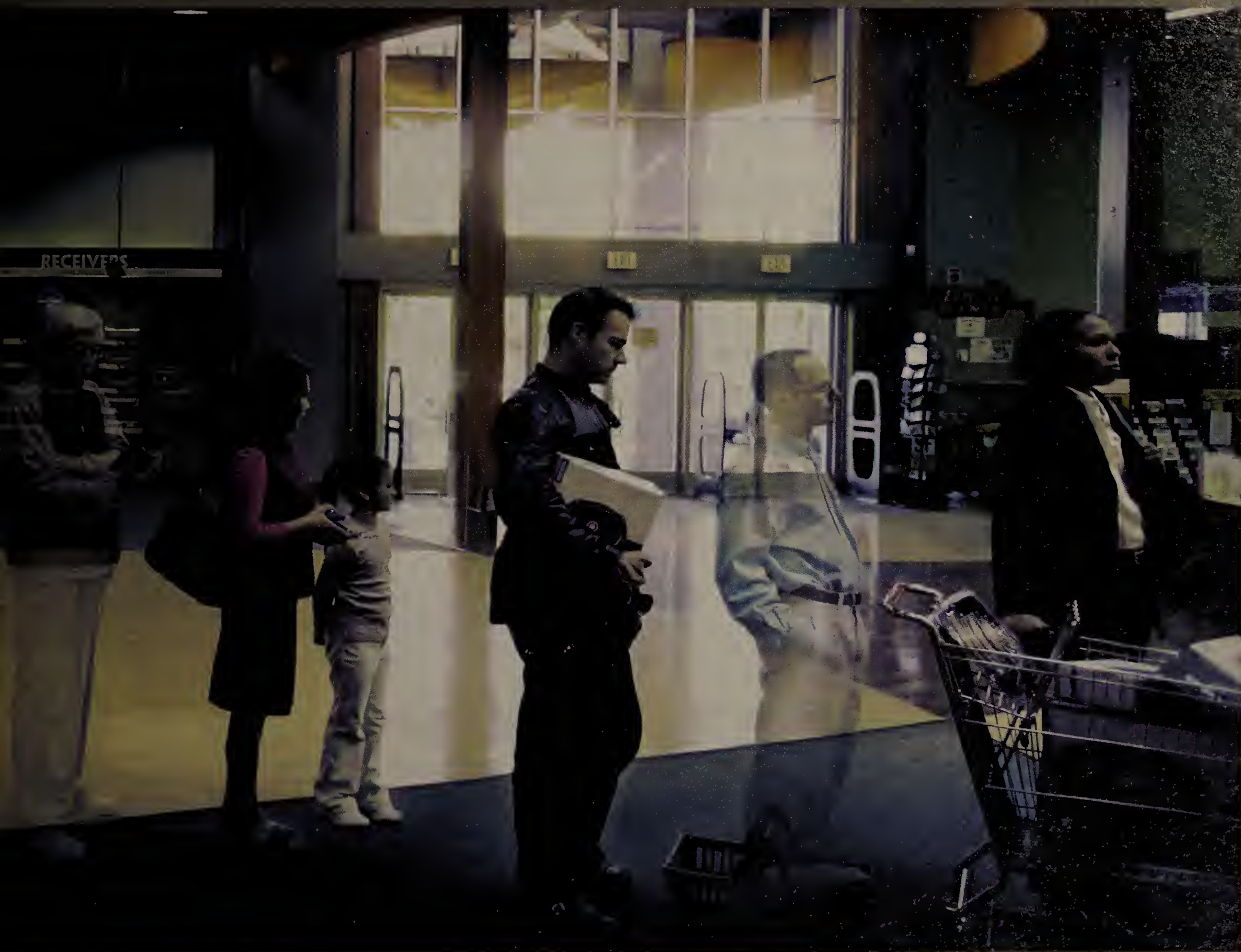
Quantum



3 SERVERS ARE ABOUT TO GO DOWN.

ONE OF THEM WILL LOSE 200
CUSTOMERS PER MINUTE.



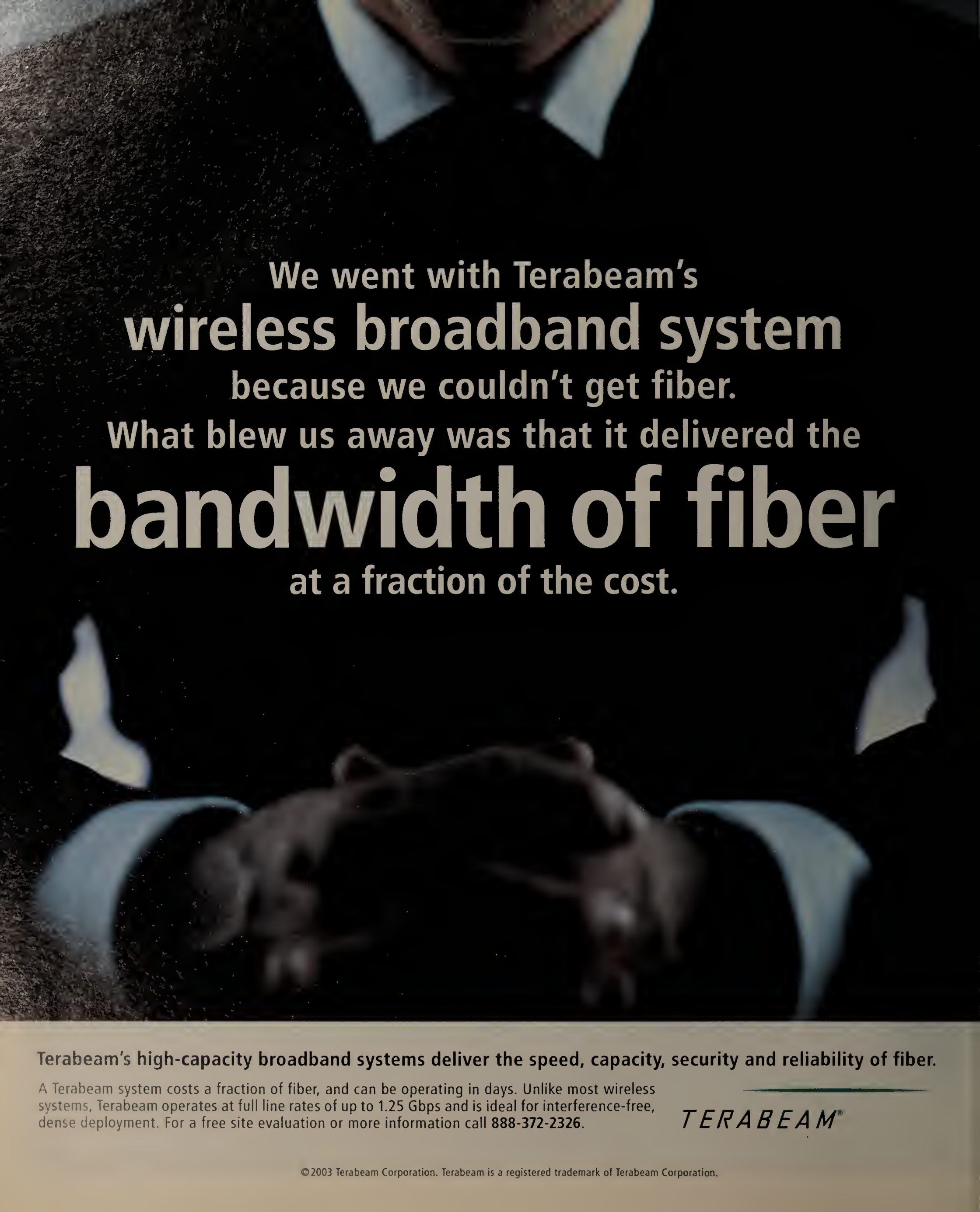


CAN YOUR SOFTWARE TELL YOU WHICH ONE?

Business Service Management solutions from BMC Software® can. In fact, they let you predict critical performance problems and resolve them before they ever impact your business. And you can prioritize IT management, investments and resource allocations to optimize your business performance. So you can solidly align your IT investments with strategic business goals. And protect the delivery of

vital business services like sales, customer service, online transactions, logistics and distribution—whatever is most critical to your company's success. It's enterprise management software that works with your existing IT resources to let you manage what matters from a business perspective and execute with precision. Find out how at www.bmc.com/bsm8





We went with Terabeam's
wireless broadband system
because we couldn't get fiber.
What blew us away was that it delivered the
bandwidth of fiber
at a fraction of the cost.

Terabeam's high-capacity broadband systems deliver the speed, capacity, security and reliability of fiber.

A Terabeam system costs a fraction of fiber, and can be operating in days. Unlike most wireless systems, Terabeam operates at full line rates of up to 1.25 Gbps and is ideal for interference-free, dense deployment. For a free site evaluation or more information call 888-372-2326.

TERABEAM®

Net.Worker

■ PRODUCTS, SERVICES AND STRATEGIES
FOR TYING TELEWORKERS TO THE ENTERPRISE

Adventures in broadband video

Our intrepid editor tries to meet the world face-to-face.

■ BY KEITH SHAW

These days, the best thing about broadband isn't the speed — it's the cool new applications you get to run on top of it.

Take videoconferencing. Emerging products and applications make the old days of Webcams seem like black and white TV vs. color TV. Broadband's fat pipe gives you a

chance for higher resolution and increased frame rates, meaning less jitter and latency.

We spent the past few weeks trying out some of the latest gear and software aimed at the power consumer. But consumer technology also can help firms stay in touch with their remote-office workers.

We wanted to try a sampling of what's out there — different forms and methods of connecting mean that these are not one-size-fits-all products. Your situation and preferences might vary from ours.

For successful home videoconferencing, start with a good quality Webcam. For products that required one, we used the Logitech QuickCam Pro 4000 (\$80). The device comes with Yahoo Messenger, which includes a videoconferencing feature with its instant-messaging application. Other instant-messaging services, such as Windows Messenger, also provide videoconferencing. These applications are good, but sound and picture qualities depend on the quality of the Webcam and Internet traffic. Bottom line: If the picture is important, go with a higher-end model.

Yahoo Messenger has a SuperCam mode that lets you enhance the image quality when you're videoconferencing with one person directly rather than with several at once. However, this involves opening ports on your home gateway or router, so you'll need some network knowledge.

Apple iSight and iChat AV

We had a blast with Apple's iSight camera and iChat AV application. At test time, the iChat AV was still in beta, but it had enough great features to warrant a look. The system works only with Macintosh computers running OS X 10.2.5 or later, and a broadband connection is required.

The iSight camera is a sleek Webcam with a stylish design. It connects via a FireWire port, giving it faster transfer rates to the computer than with traditional USB cameras (although some USB 2.0 Webcams are shipping). We tested the product on the 17-inch screen of a PowerBook G4 and 12-inch PowerBook G4 notebook connected to a router and cable modem delivering 768K bit/sec downstream and 128K bit/sec upstream.

Setup and configuration was a breeze, and we were up and videoconferencing

in no time. No firewall or router configuration was necessary; the iChat AV application detected whether

the camera was operational and whether any buddies had their cameras ready. Sending an instant message to a buddy also sends a videoconferencing request pop-up message; once the recipient accepts, the connection is made. (While we could chat with PC users, we could only videoconference with iSight and iChat AV users.)

Apple gets auto-focus right. On other Web cams, we usually ended up manually configuring the focus settings, which never seemed quite right. The iSight camera does this for you. The picture was extremely clear.

You can stream video up to 30 frames per second, but we got about 13 to 15 frame/sec. A higher frame rate might eat up bandwidth on your network, so the amount of network activity could affect performance quality. The iSight camera also works with other videoconferencing applications, so we tried it with Yahoo Messenger. However, the picture quality declined somewhat.

If most of your remote workers use Macs, then look no further. However, on a mixed network, the camera will work well for the Mac users, but quality will decline a bit when they use other software to videoconference.

NetworkWorld Review



D-Link DVC-1000 i2eye

Cost: \$300.

Pros: No PC needed; big picture via TV screen; relatively easy setup and configuration.

Cons: Requires network knowledge if users are behind routers/firewalls.

D-Link i2eye

We liked the D-Link Systems DVC-1000 i2eye videophone because it doesn't require a PC — just a network with a broadband connection. The device supports both 802.11b wireless and wired Ethernet networks, although for the former you'll need to add a wireless Ethernet adapter.

Like a game console, the appliance connects to a TV through RCA jacks for video and audio. Configuration is handled on-screen via a remote control. Setup involved setting an IP address for the box (either Dynamic Host Configuration Protocol [DHCP] or static). The DVC-1000 uses an external directory server hosted by D-Link that lets users register a phone number for the device. You can pick any number, so we used our landline number. When another DVC-1000 user dials your number, your DVC-1000 rings and lets you accept the call. This procedure lets users connect to each other without knowing their devices' IP addresses.

To talk, you can connect an analog telephone to the device, which we preferred over using the microphone. But to dial, we found the remote control on the TV easier to use than the phone's keypad.

The greatest obstacle to connecting was possible router blocking — which means you might need to open ports or create demilitarized proxies to expose the device to the Web-based directory server. Sometimes we had success opening ports and connecting; other times we were baffled. Documentation on all these product is sparse at best, so problems are best handed off to technical support.

See Broadband video, page 42

Takes

■ **SMC Networks** recently announced a wireless device that can be used as an adapter, access point or repeater. The **SMC Wireless Multi-Mode device** installs without drivers and supports the Wireless Distribution System protocol, which lets it extend the range of a 2.4-GHz wireless network using a point-to-point or point-to-multipoint configuration. The company says the device will be available in November and will cost \$130.

■ **Cable modem** and **DSL services** will be the key drivers for broadband growth in the small to midsize business market in the next five to 10 years, representing \$10 billion to \$15 billion in revenue, according to a new report from Pacific Research Institute and the New Millennium Research Council. "Being Served: Broadband Competition in the Small and Medium Sized Business Market" predicts 43% of very small, 49% of small and 59% of midsize businesses will increase their Internet usage in the next year.

■ In an effort to enable multimedia streaming on home networks, residential gateway maker **2Wire** last week acquired **Sugar Media**, a start-up developing a digital media software platform for home entertainment applications. Sugar Media's technology will give 2Wire the ability to provide its DSL service provider a platform for offering a triple play of voice, data and entertainment services. Terms of the deal were not disclosed.



Apple iSight and iChat AV

Cost: \$150 for camera. iChat AV free with Mac OS X Panther; Mac OS Jaguar (10.2.5 and higher) users must pay \$30.

Pros: Outstanding quality; easy setup.

Cons: Mac-to-Mac only.

Broadband video

Continued from page 41

Picture and audio quality were excellent, as the TV screen gave us a larger picture than our PC's monitor. The manual focus ring on the device adjusted well to the

amount of light in the room. There was some slight pixilation, especially when the subject moved around a lot, but for the most part we were happy with the quality.

For remote workers, this might not make the best option because they will need TVs in their offices. But it's a great "chatting with

Grandma" product, if she has broadband.

Vision VisiFone

The most professional-looking device we tested, the Vision VisiFone is a standard office phone with an added video camera and screen. Like the D-Link DVC-1000, the

VisiFone doesn't require a PC and worked on a wired Ethernet or wireless network (with a wireless Ethernet adapter). Vision plans to sell the phone to broadband providers as a way for them to sell enhanced services; however, you can buy it directly from the company.

Setup was pretty easy — once we connected the power and the Ethernet cable, we chose how to connect to the network. Setup occurs on the phone's video screen; when finished we had to reboot.

Some network knowledge is needed, because the device needs to know whether it gets a static IP address or one dynamically assigned from a DHCP server. The documentation, which wasn't very good, had about 12 different network setup scenarios, which was odd because the end user or IT manager should know the best way to set up the system.

With setup complete, we dialed the recipient by tapping in his IP address on the phone's keypad or by choosing the name from the device's phone book. (You need to enter names manually.)

Before the system would work, we had to tweak it several times and call tech support. The Vision support staff was extremely helpful and quickly got us up and running.

The image quality was excellent, in part because of the small screen size. We could see and hear the caller on the other end, and video and audio synchronized nicely. There was no way to track frame rate or other statistics directly through the phone, which made it difficult to tell what we achieved. Vision recommends using a minimum broadband connection of 256K bit/sec for upload, warning that a slower connection can produce jitter and latency. Even so, we thought our 128K bit/sec upload speeds were fine.

For home workers connecting at their desks, this might be the best option. Sufficient network knowledge and likely a call to Vision tech support are required. ■

Your preferences. Your policies.
Your needs. Your **anti-spam** solution.

With the new **Message Inspector™ v4**, you're in control. Establish unique email policies. Set individualized spam definitions. Message Inspector's configurable spam filter adapts to your requirements. Using a unique combination of the latest anti-spam technologies, Message Inspector provides the most comprehensive and accurate solution available. And administration is no problem, thanks to multiple management and reporting tools that minimize spam's impact on your IT resources. Making Message Inspector the most accurate, flexible, and easy to use spam filter available.

Request a free trial at www.zixcorp.com/customfit or call 800-767-6683.

zixcorp.

secure email | anti-spam | anti-virus | content filtering | url filtering

**Vision VisiFone**

Cost: \$600 direct; when offered through service providers, price varies.

Pros: No PC needed; great picture quality; great customer support.

Cons: Pricey for consumers; some network knowledge needed for setup.

**More online!**

For more products, go online for our expanded review.

DocFinder: 8230

Technology update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

Object storage ensures high scalability

■ BY GARTH GIBSON

Fueled by the computational power of Linux clusters, data-intensive applications are pushing the limits of traditional storage architectures. Whether mapping the human genome, imaging the earth's substructure to find new energy reserves, or generating the latest blockbuster animated feature, these applications require extraordinary throughput.

Object storage is an emerging architecture uniquely suited to complement Linux compute clusters.

The technology taps commodity processing, networking and storage components such as Serial ATA drives.

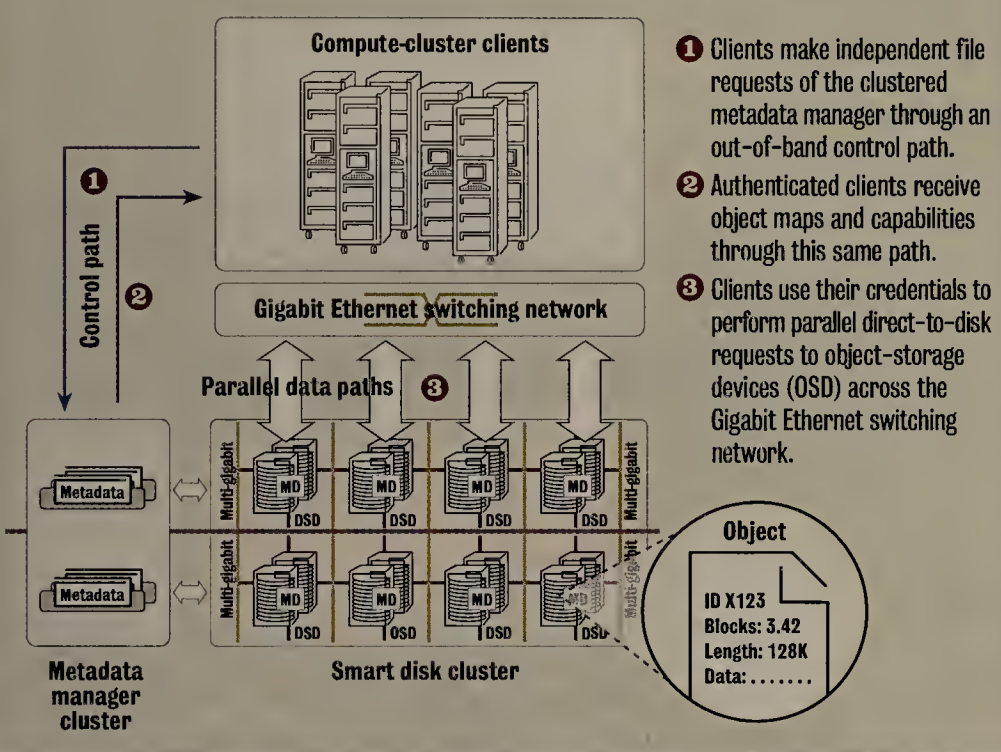
At the core of this new architecture are storage objects, the fundamental unit of data storage. Unlike files or blocks, which are used as the basic components in conventional architectures, an object is a combination of application (file) data and storage attributes (metadata). These attributes define, on a per-file basis: data layout and usage information; RAID level; and other information the system uses to ensure quality of service.

Object storage provides two benefits. First, it gives clients direct access to network-attached storage (NAS) devices through parallel data paths, supporting high concurrency and scalable data access. Second, it distributes file system metadata — such as file names, directories and file ownership — via a scalable, clustered metadata manager to support standard file system operations in an out-of-band control path. Together, these features ensure a highly scalable storage system that can sustain high performance I/O simultaneously to hundreds of clients.

■ HOW IT WORKS

Object storage

Object-based storage architecture distributes metadata via a scalable clustered metadata manager to provide high performance and scalability.



The objects are stored on object-based storage devices (OSD) that contain processors, memory and network interfaces, which lets them manage the local set of objects and autonomously serve data to network-attached clients.

Because these intelligent drives understand the organization and relationships of their data objects, they can exploit local processing and memory to optimize data layout and pre-fetch and cache application data. A standard OSD command set

for managing and accessing these storage objects over TCP/IP has been defined and is being adopted by the ANSI T10 technical committee.

With this new storage technology, files and directories are built from objects that are physically distributed across a cluster of OSDs. Data access is granted through a metadata manager — file-system software and commodity hardware for PCs that orchestrate the interaction of the clients with the objects on the OSDs

through traditional file-system semantics — Portable Operating System Interface, Network File System and Common Internet File System. The metadata manager also provides key file-system services, including authentication and access control, file locking and distributed cache consistency.

Separating file and storage metadata management overcomes the file-sharing limitations of storage-area networks (SAN) and the data-path bottleneck that is common in NAS systems. The object storage architecture is well-suited for Linux cluster computing applications. The compute cluster and the OSD storage cluster are connected through a scalable Gigabit Ethernet fabric.

Client applications running on the compute-cluster nodes make independent file-access requests of the metadata manager. The metadata manager returns an object map (a set of object IDs and the OSDs on which they reside) that the client caches and uses to access data objects stored on the OSDs. Once the client has obtained the map, all subsequent file activity occurs directly between the client and the OSDs.

Object storage architecture allows for storage systems that extend the traditional sharing and management features of NAS systems and the resource consolidation and scalability of SAN systems. This combination of performance, scalability, manageability and security only could be achieved by creating an entirely new paradigm in storage architectures.

Gibson is co-founder and CTO of Panasas. He can be reached at garth@panasas.com.

Ask Dr. Internet

By Steve Blass

Where can I find a Bayesian spam filter that will run on our Windows and Linux workstations?

Popfile is a free Naive-Bayesian spam filter available at popfile.sourceforge.net. It is written in Perl to work with POP3 mail clients, and runs as a POP proxy on your workstation. After installing the software you change the POP server settings in your mail client to use the Popfile proxy, which then handles the communications with your POP server. No changes to the outbound Simple Mail

Transfer Protocol server settings are required. The Windows version comes with everything it needs to run bundled in a Windows installation package, and instructions for using it with Outlook and Exchange Server are provided. A Web browser interface lets you configure, manage and train the Bayesian mail filter. Popfile supports multiple accounts, and it can be used with multiple e-mail clients on one machine or on a gateway server for a network. Mail also can be read through the Popfile browser interface. When you install Popfile,

you teach it the difference between the mail categories you establish, called buckets, by classifying a number of messages by hand through the browser interface. After that, you only have to reclassify errors. Initially, I hand-classified 40 messages, and have had to reclassify less than a dozen out of more than 1,000 messages since.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com

GEARHEAD INSIDE THE NETWORK MACHINE

Mark
Gibbs



Some months ago in a Backspin column (www.nwfusion.com, DocFinder: 8231) Gibbs mentioned an application that he really liked called MindManager 2002 from MindJet, which he had discussed in detail in his Network World Web Applications newsletter (DocFinder: 8232). Well, MindJet has just released a new and significantly upgraded version called MindManager X5 Pro that has impressed us.

But before we discuss MindManager we should explain the background of this software. It is all about a technique called mind mapping that is used for gathering and organizing your thoughts on a subject. Mind maps were invented in the 1970s by Tony Buzan, who went on to build a business around the technique (details available at DocFinder: 8233).

Buzan realized that trying to organize thinking in a linear fashion (such as a list of notes) is not as effective as a free-form web of associations and that text is not as effective

Mind that mind map!

as a picture in aiding recall of an idea (the old "a picture is worth a thousand words" idea).

With mind mapping, you begin with your central idea, say, building a better mousetrap. Starting in the middle of a blank sheet of paper you draw a bubble with "Better Mousetrap" in it. Then you draw more bubbles linked by lines to that central bubble, each bubble a connected idea such as "Technology," "Manufacturing," "Marketing," "Sales" and "Support."

Then you focus on each of the secondary bubbles and surround them with tertiary ideas and so on. Sometimes you'll find two or more ideas (or nodes) on different branches that are somehow related so you can connect them with a line. Check out Buzan's how-to story online at DocFinder: 8234.

Thoughts as diagrams

What you've got at the end of the exercise is a breakdown of your thinking about that subject — in our example, an entire business plan for the better mousetrap. And if you are planning to write about the subject you could translate the mind map into a hierarchical outline or, alternatively, if the map is your notes for a meeting, you might just leave it as is.

Well, such a concept just cries out for translation into software and several outfits have done just that. While we have played with most of the products available, MindManager (more information at DocFinder: 8235) is the best of the lot, and the latest release, MindManager X5 Pro, adds even more to an already powerful product.

For a start, of all the competition MindManager is the most sophisticated in terms of the flexibility and quality of the graphics it produces. The output of many of the other products is somewhat unpolished (and in some cases downright ugly), whereas MindManager's results look good, and you can tune and tweak the look of your mind maps to a fantastic degree.

You can attach symbols to any node to indicate function or priority, as well as task information and export your maps in Microsoft Project Exchange (MPX) format. MindManager X5 Pro also offers Map Parts — nodes that can read RSS news feeds; submit and retrieve Google queries; list files and subdirectories; and link to Outlook to retrieve tasks, contacts, appointments and notes. Map Part data gets embedded in the map and can be updated automatically or whenever required.

This integration of live data sources in a structured outline is a novel idea. It could

be very useful, for example, to generate reports by pulling data from Web searches and services and Microsoft Office documents, and then exporting the results back to Office documents for formatting and distribution or to HTML for Web service deployment.

You also can output maps to a printer or a PDF-formatted file or you can save them in native MindManager format as bitmaps or Portable Network Graphics (PNG) images, PowerPoint presentations, Word documents, HTML (both graphical version of maps and hierarchical page versions can be output) or XML files. MindManager also lets you create and execute macros using Windows Visual Basic for Applications so the possibilities for integration with other resources, servers and services using macros with PNG, HTML and XML input and output are intriguing.

But under all the fancy features (and we've not covered everything) MindManager's basic functionality is a terrific way to develop ideas and projects, and there's nothing quite like it. MindManager X5 Pro costs \$299, and MindManager X5, which doesn't have XML extensibility, costs \$199.

Map your thoughts to gearhead@gibbs.com.



Cool Tools

**Quick takes
on high-tech toys**
By Keith Shaw

New pocket camera from Logitech

Logitech has updated its Pocket Digital camera by adding a built-in strobe flash and offering 1.3-megapixel resolution. The credit-card-size camera is small enough to fit into a shirt pocket and weighs 3.6 ounces and

The Pocket Digital 130 includes 16M bytes of internal memory, which holds about 45 pictures in 1.3-megapixel resolution, or about 130 pictures in VGA (640-by-480-pixel) resolution. The built-in lithium ion battery can be recharged through the camera's USB cable. Another cool feature is that Windows XP and Mac OS X users can connect the camera to a computer and see the pictures on the device without having to download the Logitech software. This is possible because the camera acts as a USB storage device. A user pulls the frame of the camera to reveal the lens and turn on the camera, and pushes the frame to turn the camera off.



**Snapping
pictures is
a breeze with
the Pocket Digital
130.**

One device to rule them all

Taking convergence to its logical next step, Addonics last week launched a device that seems to do almost everything except slice a tomato. The Addonics 16-in-1 Multifunction Recorder (MFR) combines an 8-in-1 Flash memory reader and writer with a DVD player, CD burner and stand-alone MP3 player. The MFR is scheduled to be available on Nov. 1 priced at about \$250, the company says.

The device connects via USB 2.0, and has S-Video and audio/video output ports that let you connect to a TV for DVD movie output (you also can connect to a digital projector). It lets you read and write from most Flash memory formats, and you can convert Flash media onto a CD-RW disc by pushing a button, Addonics says.

The device weighs 1.4 pounds (with the battery) and supports Windows 98 SE systems and above. More details are available at www.shopaddonics.com.

Make a DVD in about 10 minutes

Sony last week announced two new DVD drives that support 8x-speed

DVD+R recording. The company says the drives can burn a full DVD in about 10 minutes. The internal DRU-530A (\$270, available in December) and external DRX-530UL (\$350, available in January) drives also support up to 4x-speed DVD+RW and DVD-R recording and 2x-speed DVD-RW, 40x CD-R and 24x CD-RW recording.

More information, plus a tutorial on how to convert your VHS tapes to DVD, is available at

www.sony.com/dvdburners.

Toshiba notebook has notes organizer

Toshiba's digital products division last week launched the Satellite M30/35 series of notebooks, which include a 15.4-inch widescreen display, built-in wireless LAN connectivity and the new Microsoft Office OneNote 2003 digital note-taking application.

The OneNote 2003 application aims to capture, organize, share and use notes more effectively, to help users become more productive, Toshiba says. An additional option for the notebook is the Microsoft Office Small Business Edition 2003.

The 6-pound notebook starts at about \$1,650, and includes a 1.4-GHz Intel Pentium M processor, Windows XP Home or Professional, up to 60G bytes of hard-drive space, up to 512M bytes of DDR SDRAM, Harman/Kardon stereo speakers, an IEEE 1394 port, three USB 2.0 ports, integrated V.92 modem, integrated 10/100 Ethernet and a DVD/CD-RW combination drive. More details are available at www.shoptoshiba.com.

Toshiba also announced five other notebooks that all include built-in 802.11g wireless connectivity — the Satellite A10-S169 (about \$1,200), the A35-S159 (about \$1,400), the P10-S429 (about \$1,600), P15-S409 (about \$1,900) and the P25-S509 (about \$2,200).

Shaw can be reached at kshaw@nw.com.

Reading someone else's
copy of Network World?

Apply for your own
Free subscription today.

subscribenw.com/b03



Free subscription
(51 Issues)

To apply online go to
subscribenw.com/b03

subscribenw.com/b03

**Apply for your
free
subscription today!**
(A \$255 value - yours free)



CONVERT
PROSPECT

Building highly scalable digital business solutions with your success as our main objective

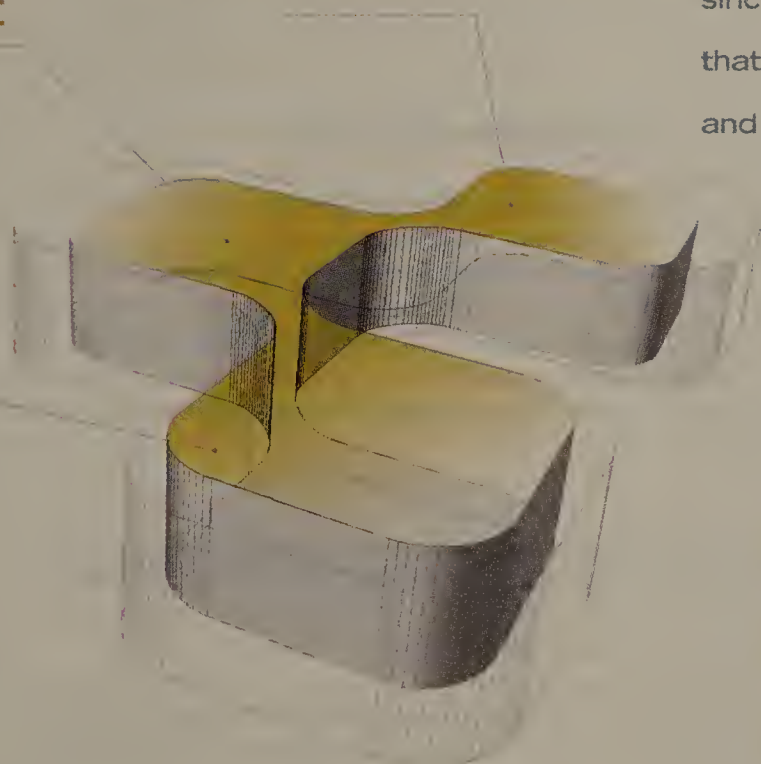
RETAIN

convert

retain

prospect

Most recently a 300% revenue increase was achieved within a 24 month time frame for the Managed IT Solutions provider RackFast.com



Building Success for our clients since 1998 with proven solutions that result in noticeable revenue and productivity increases.

- Application Development
- Systems Integration
- Branding & Design
- Interactive Presentations
- Usability Analysis
- Prospect Conversion Tools

www.ceonex.com

Email: Info@ceonex.com

Phone: 413 663 9798



 **ceonex**
First to Market



EDITORIAL

John Dix

IDS has a role when done right

When last we discussed the relative worth of intrusion-detection systems on this page (see www.nwfusion.com, DocFinder: 8236) we said we would reserve judgment pending our second review of the products.

At the time, Gartner was creating a flap by saying IDS systems are a waste of money because they flood users with false positives, a conclusion we had reached in our first test of IDS products in November 2002 (DocFinder: 8237).

Now that we've published our second review of IDS products (see DocFinder: 8238), we're ready to weigh in on the debate about whether IDS systems are worthwhile: Yes, but ... IDSs still generate too many false positives, and they are not for everyone. But if you know what you're doing and have realistic expectations they add value.

On the false-positive front, Network World Test Alliance member Joel Snyder, a senior partner at Opus One in Tucson, Ariz., says the systems in this latest test generated gigabytes of alerts over the two-month test period. There were times when they were spitting out 100,000 alerts per day.

That said, the products did offer better tools to handle the flood. "With flexible grouping and display options, and automated upgrade and downgrade of alert information, we could make our way through the thousands of alerts we got each day," Snyder says.

But he qualifies that as only a baby step forward. "They are better than they used to be, but only slightly. You can't use IDS to alert you to when something bad is happening because you simply get too many alerts for that," he says. "But IDS is good for forensics, finding the details when you know something bad has happened."

For example, if you see a server disk has filled up with Metallica songs, you can use IDS to paw through the relative information to identify how the cretins reached the server and then go plug that rat hole, Snyder says.

But, he points out, you need employees devoted to security to get the most out of these systems, and you need detailed security policies and network knowledge for IDSs to make a difference. Said another way: These systems are for more-sophisticated shops.

So while Gartner is ready to write off IDS products as useless, we think they can play a meaningful role in larger networks when implemented and used correctly. IDS won't help you recognize an attack, but when there has been a breach they can be real timesavers.

— John Dix
Editor in chief
jdix@nww.com

Consider coaxial cable

Regarding your story "Cutting 10G costs with copper" (www.nwfusion.com, DocFinder: 8223): Twisted copper pair is a poor medium for high frequencies because of the increasing radiation and power loss. Why not use coaxial cable, which is not expensive? You avoid radiation, and you can go out to a mile or so with 100-GHz bandwidth. You could use very small coaxial cables for short distances. They could be as small as twisted pairs and easily cabled together. These are all standard techniques, except for very small sizes. We seem to think we have to jump from twisted pair to fiber optics and ignore the huge frequency span of coaxial cable.

Frank Johnson
Beulah, Mich.

DSL not mission critical

Regarding "DSL Forum targets business services" (DocFinder: 8224): I question the positioning of DSL as a viable mission-critical option. While data quality of service is a great selling point to businesses that cannot afford T-1 access, without the tariff on the loop (such as in true T-1 service) I don't think DSL should in any way be positioned as mission critical. Without tariffs to dictate repair response time by the telephone company, DSL loop failures still will be an issue. Increased bandwidth and better data throughput are wonderful, but if the line is down for three days because of a loop problem, the client doesn't have the uptime required for a mission-critical solution.

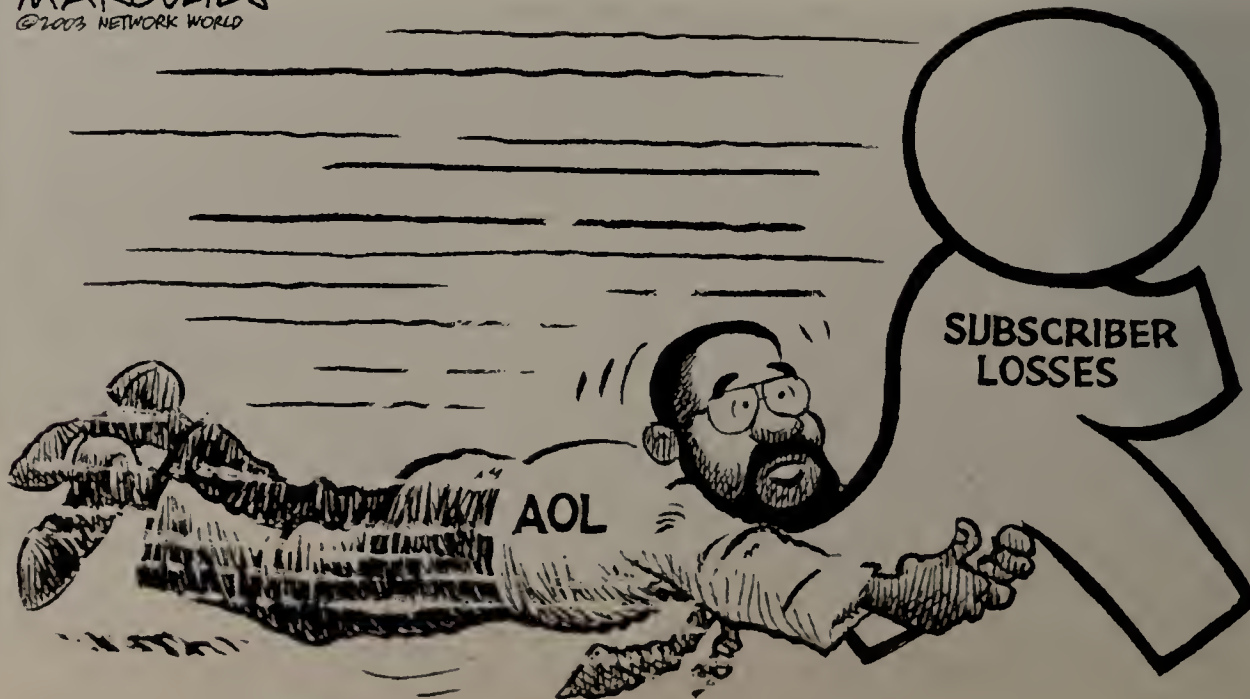
Russell Benoit
Commercial account manager
Meganet Communications
Fall River, Mass.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.



More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 8222**

MARGULIES
©2003 NETWORK WORLD



Live is best

Regarding Kevin Tolly's column "Testing anti-spam products can be done" (DocFinder: 8225): My organization tested anti-spam products with a "live" e-mail stream. There was a Unix host that we decommissioned months ago. I reinstated its DNS name, knowing that spammers likely would still be sending to it. (Even legitimate, but poorly managed, mailing lists were still e-mailing to it.) That decommissioned host's name was reassigned to each anti-spam product to evaluate each one. "Live" streams are best if you can arrange for it.

Craig Paul
Lawrence, Kan.

Tolly responds: I agree; live is best. We needed to be able to run the same test across many products over multiple weeks. So we collected a live feed, logged it to a database and worked from it. The trade-off, of course, was that it wasn't "fresh" anymore — but at least we could see how different products responded to the same stream.

Subtract this ad

Regarding Mark Gibbs' comparing the Internet to the telephone company in his Backspin column "The 'Net up for grabs" (DocFinder: 8226): For a while my phone company did just what Gibbs suggests, delivering an advertisement in response to a busy signal. Every time I got a busy signal, I would immediately get a sales pitch offering, for a certain sum of money, to redial until connected.

I can only speculate as to why my phone company stopped offering this service. Perhaps some regulatory body stepped in, or unhappy customers complained, or maybe it just didn't yield the cash flow they had hoped.

Glen McFarland
Oroville, Calif.



THROUGH CHANNELS

Ken Presti

A few months ago, I got back into fencing to get some exercise and, I hope, cheat middle age for a little while longer. Having already enjoyed the sport during my college days, I dug my old equipment out of the garage and joined a nearby fencing club, recalling that after a hard day's work there's

something therapeutic about going after someone with a saber — knowing that both parties will wake up with everything intact the next day.

The old gear worked fine until last week, when a small chunk fell out of my mask during an especially spirited bout. The damage didn't look all that threatening. But when the coach realized I was using a mask older than some of my opponents, he explained that the device that protects my face from permanent disfigurement might not be a good place to save a few bucks. Because small holes often beget larger holes, I bought a new mask.

The experience brought to mind a range of strategies people use to save money — and sometimes put at risk, or outright surrender, things that are far more valuable than the actual savings. Case in point: users' relationships with integrators and value-added resellers (VAR).

Given the high levels of competition in this area, IT managers often play one channel partner against another to get low upfront bids for projects that a few years ago would have been more costly. This often results in integrators and VARs poaching clients from one another after a competitor has invested substantial time and energy in the design phase. While this might look like a wonderful way for IT managers to

reduce expenses, it carries long-range costs that should be factored into the equation.

First, the integrator that just lost the deal lost more than revenue potential; it lost real dollars associated with the upfront costs of the pre-sales efforts. Second, the poacher is often working with a lower-cost model that was secured by cutting expenses such as training, certification and support capabilities that could well be crucial to you over the long haul.

Another strategy involves negotiating the deal past the partner's obvious threshold of pain. With competent people on both sides of the table, this is less likely to happen, but when a negotiator is inexperienced or has an emotional need to close a deal, strange things can happen.

The bad news is that when the emotional need to close a deal has been fulfilled, the buyer's wonderfully advantageous deal turns into a very low-margin support burden in the eyes of the channel partner. If the client who comes in after you is nowhere near as good a negotiator and yields a better margin for the channel partner, which client do you think the partner will take care of first when you both need help?

I'm not saying that negotiation and cost-control are bad. But success hinges more substantially on a long-term approach to all facets of business, including partnering. The win-win concept rules here because short-term advantages are sometimes just too costly when you look at their long-term impacts.

Presti is research director of IDC's Network Channels and Alliances service. He can be reached at kpresti@idc.com.

Cut-rate integration: The downside

... success hinges more substantially on a long-term approach to all facets of business, including partnering.



REALITY CHECK

Thomas Nolle

Early this year, a CIO received complaints from end users at corporate headquarters about the performance of some key applications. A review by the network operations group showed that LAN traffic had been mounting for about four months, reaching a level nearly double the previous

norm. Internet traffic also had increased significantly.

It took several weeks to configure management tools to uncover the problem, which turned out to be a group of workers downloading songs and videos and burning them onto CD-ROMs and DVDs. The workers even set up an internal peer-network sharing system to distribute their finds to others. This activity accounted for 25% of headquarters LAN traffic and one-third of Internet traffic during some periods. At no time were more than 20 employees involved, in a facility that housed more than 500 workers, but it was enough to cripple some applications.

Most employers are more concerned about the loss of worker productivity in personal Web use than the traffic that use generates. In 2000, only about 10% of companies told me they believed workers' personal Internet use affected their networks, and none indicated that this traffic caused application problems. In 2003, I estimate that about one-quarter of all corporate networks are affected by recreational Web surfing, with the fastest-growing source of traffic the downloading of songs and movies. If store-for-play video becomes widely distributed on the Internet, companies could face downloads of gigabytes of material from each viewer and a run on DVD media to store the files. The effect on network performance could be staggering.

The content craze has reignited the old debates on how to deal with workers who'd rather play games, surf the Web or download content than do their job. "Theft of time," as some personnel directors call these diversions, is usually a subject of a company policy, but content downloading presents a special problem because the worker often starts a download and then goes on with the job. The network is affected, but

not worker performance. Restricting access to the Internet for some or all workers has been only moderately effective in stemming the problem, according to most users with whom I've spoken. This occurs because Internet use is a requirement for more types of jobs today than even three years ago.

Probably the best way to deal with content-induced network performance problems is careful traffic monitoring and analysis. Many network management systems and network performance monitors can provide per-client traffic histograms that can help spot sharp increases in network use. The reports can be routed to line department management, who can then determine if there's a work-related reason for the inquiry. If there isn't, an interview with the employee is indicated. All of this can be done without actively snooping on employee traffic. Worker rights vary from state to state, but it's bad policy to presume guilt.


Speaking of rights, there could be more at stake than network performance. Software vendors and industry associations are taking legal action against companies that promote or condone illegal copying of software. In addition, recent actions by organizations such as the Recording Industry Association of America make it clear that the music and movie industries aren't going to take "sharing" of copyrighted material lying down. Companies without a reasonable policy to prevent employees from copying movies or music might end up being sued.

"Reasonable policy" is the key here. Employers should establish firm rules for what can and cannot be done at work, and then use network traffic monitoring to help identify who might be breaking the rules. Take steps to curtail content downloading on an individual case basis, when traffic patterns make it clear that something is happening. It takes time to publish a new policy and educate workers. Start now, and save a lot of headaches when content delivery becomes widespread — which is likely to happen in 2004.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at (856) 753-0004 or tnolle@cimicorp.com.

Content craze threatens net performance

Employers should establish firm rules for what can and cannot be done at work, and then use network traffic monitoring ...



Microsoft®

Full potential. Our passion.™

User demand for remote e-mail access: unlimited.

Introducing Microsoft Windows Server 2003. Do more with less.

You're being asked to do more. You're being asked to do it with less. Windows Server™ 2003 and new Microsoft® Exchange Server 2003 work together to manage these opposing forces and help you deliver a more robust and secure, remote e-mail access solution with less time, money, and hassle. Download your free evaluation copy of Exchange Server 2003 on Windows Server 2003 at getexchange2003.com

Timex executives needed full, fast access to e-mail while traveling globally. By deploying Microsoft Windows Server 2003 and Exchange Server 2003, Timex got a secure and cost-efficient e-mail solution that provided Web mail access. This enabled executives and mobile employees to greatly simplify remote access and dramatically improve overall productivity. Timex also expects Outlook® 2003 to further improve efficiency.

Your budget for remote e-mail access: very limited.

**You've built redundancy into your systems,
but if they can't be used to run your business,
they might as well be here.**



Introducing Information Availability.

You've dedicated tremendous time and resources to safeguarding your company's mission-critical systems. But if it isn't combined with a robust, redundant infrastructure, the latest technologies, professional expertise, and proven processes; you won't achieve the levels of availability and uptime today's marketplace demands. That's why you need a SunGard Information Availability strategy. Working with SunGard, we'll customize a total solution that helps ensure your employees and customers have uninterrupted access to the critical systems and data that run your business, 24/7. Make sure all your systems are "go". To see how cost effective an Information Availability strategy can be, see our white paper prepared by IDC at: www.availability.sungard.com

SUNGARD®
Availability Services

**Keeping People and
Information Connected**

MANAGED SERVICES • PROFESSIONAL SERVICES • BUSINESS CONTINUITY

IT execs are loading enterprise business applications onto those cool little gadgets.

Mobile grows up

BY STEVE ULFELDER

Matt Norce has watched mobile computing evolve. Four years ago, Norce, network administrator at J.C. Ehrlich, a Reading, Pa., pest-control company with 42 offices in five states, began giving mobile workers PDAs from HP.

He used synchronization software from Extended Systems to load appointment information and driving directions on the devices. But the 120 exterminators in the pilot project quickly asked for more functionality. "People start out with basic [personal information management] applications. Then they see the potential of the software and they want to do enterprise apps too," Norce says.

As a result, the pest-control company has added CRM and e-mail to its mobile arsenal. Working with Weidenhammer Systems, a Reading development firm, J.C. Ehrlich's team built a CRM application specifically for PDAs, avoiding many of the headaches that businesses face when they try to squeeze an enterprise application onto mobile devices.

The pilot program is being extended to all of J.C. Ehrlich's exterminators. On the hardware side, the HPs were replaced a while back with NEC MobilePros, "which are still our No. 1 unit," Norce says. And the company is rolling out newer NEC models that run Microsoft's Pocket PC operating system.

According to Gartner, 55% of large companies plan to move their pilot mobile applications into production this year. The primary reason is competitive pressure; with customers and trading partners growing more demanding about speed and quality of service, large businesses need to get useful data out to their mobile workers.

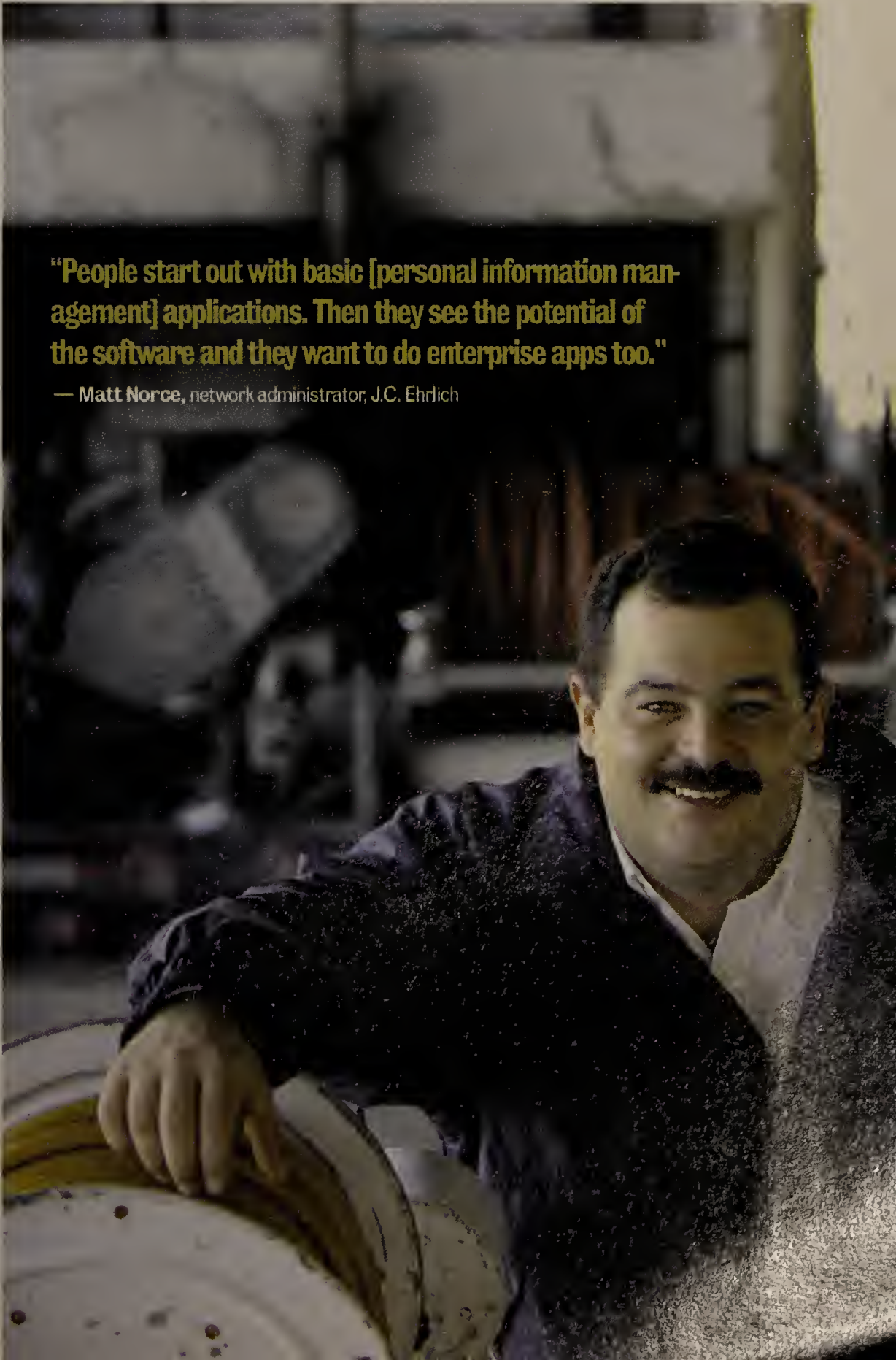
But only 25% of mobile application deployments will succeed this year, according to Gartner. The research firm says "social factors" — such as the introduction of wireless technology to workers who aren't ready for it — and bad architectural choices will be the major problems.

The good news is that mobile applications have matured enough so that a body of best practices has taken hold. Tips from analysts and businesses can help you learn from other IT organizations' pain.

Find third-party help

Pitney Bowes rethought its mobility program when the Stamford, Conn., mail and document-management giant undertook a sweeping reorganization. A division of the company had equipped its field service agents with handheld devices long ago. But "it was a proprietary system designed to look inward," says Ralph Nichols, Pitney Bowes' service program manager for document-messaging technologies. The system had other flaws too; it was a batch system relying on data that might be up to two weeks old, and most input and output was in code rather than text, "so until you intimately knew the codes, the information in the machine didn't have a lot of value," he adds.

The primary product sold and serviced by Nichols' division is Console Inserter, which is used by corporations with high mailing volumes to insert documents such as credit-card statements and utility bills in envelopes. A console inserter is a complex machine with many



"People start out with basic [personal information management] applications. Then they see the potential of the software and they want to do enterprise apps too."

— Matt Norce, network administrator, J.C. Ehrlich

mechanical, electronic and software components.

Two years ago, Pitney Bowes standardized on Siebel Systems as its CRM and field-service application provider. But Siebel lacked wireless capability. For that, Pitney Bowes turned to Antenna Software, which offers a product called Antenna A3 for Siebel Field Service.

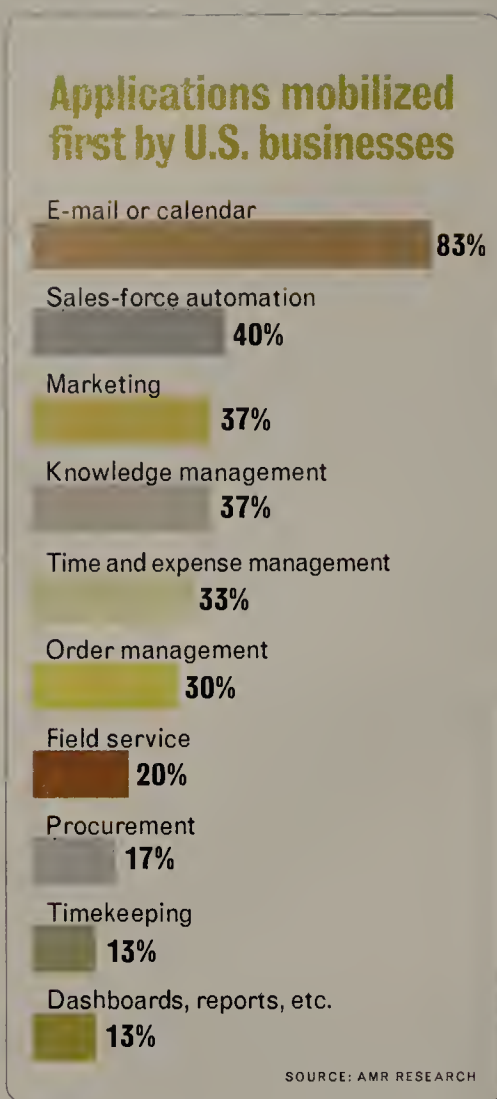
Antenna calls its underlying system A3 Mobile Foundation. The XML-based system supports diverse networks and carriers (including Code Division Multiple Access, General Packet Radio Service and two-way paging) and optimizes data transport accordingly, the company says. When Pitney Bowes technicians are out of network reach, the system stores their data input, then forwards it when they regain network access.

Futureproof your investment

Vendors of enterprise software and handheld devices are trying to make it easier to mobilize industrial-strength applications. Some are using a partner strategy, such as Siebel's with Antenna. But some analysts believe that in the next two years, most chores now handled by wireless application gateway companies will be folded into enterprise applications.

"Today, there are a lot of small vendors" in the gateway business, says Nick Jones, an analyst with Gartner. "Most will not survive in the long term. The functionality will get sucked into larger apps. Oracle, IBM's WebSphere, SAP, Microsoft — they've all got some [wireless] functionality already, and that trend will continue, with wireless application gateways becoming part of the larger portal server software."

Hardware vendors have gotten in on the act as well. In June, Research In Mo-



tion (RIM) updated the development environment for its popular BlackBerry devices, adding extensions making it easier to integrate CRM and other enterprise applications with BlackBerry's existing functionality.

Dave Werezak, vice president of marketing at RIM, says that when customers seek to mobilize software, "We work with Siebel, or SAP, and so on, and depending on the nature of the app, help establish the connectivity on the server side."

Pick the right app

Dennis Gaughan, an analyst at AMR Research, says corporate mobile deployments have tended to fizzle because they lack a persuasive business case. "This stuff is not for the faint of heart, so the application should offer significant return on investment," he says. "The problem is, most companies pick e-mail as their first [mobile] app, and it's hard to develop a business case for that. So people deploy wireless e-mail to a select group of executives — and that's where it stays."

According to an AMR report, "83% of companies report that their first mobile project — and often their last — is wireless e-mail access, which they choose ... because it is an unambiguous application that is already widely adopted."

Despite this allure, e-mail usually turns out to be useless as a test bed for other mobile applications, says Gaughan, who co-authored the report. The cost is high (\$40 per month per user at some large businesses) and its benefits are almost impossible to quantify — not exactly a convincing formula for a pilot project.

You're most likely to show positive results (and persuade senior management that mobility is a worthwhile investment) if you select applications that directly affect your ability to serve customers, AMR found. This is why salesforce automation and field service are both popular choices (see graphic, left).

In the first year, Pitney Bowes equipped its field service engineers with handhelds running a Siebel/Antenna application — inventory in the field dropped 15% and the number of expensive emergency orders to the company's central distribution center dropped 90%, Pitney Bowes' Nichols says.

And according to J.C. Ehrlich's Norce, that company's technicians have signifi-

cantly increased their number of daily appointments. These are the kinds of returns that persuade business executives to keep investing in mobilization.

Be wary of wireless

Mobile applications that can be synched up with company servers a few times each day — perhaps even once a day — might work perfectly well (and are almost sure to cost significantly less). But companies tend to fall in love with the idea of real-time communication, and thus commit themselves to wireless without analyzing whether employees need the technology. This can lead to fiscal disaster.

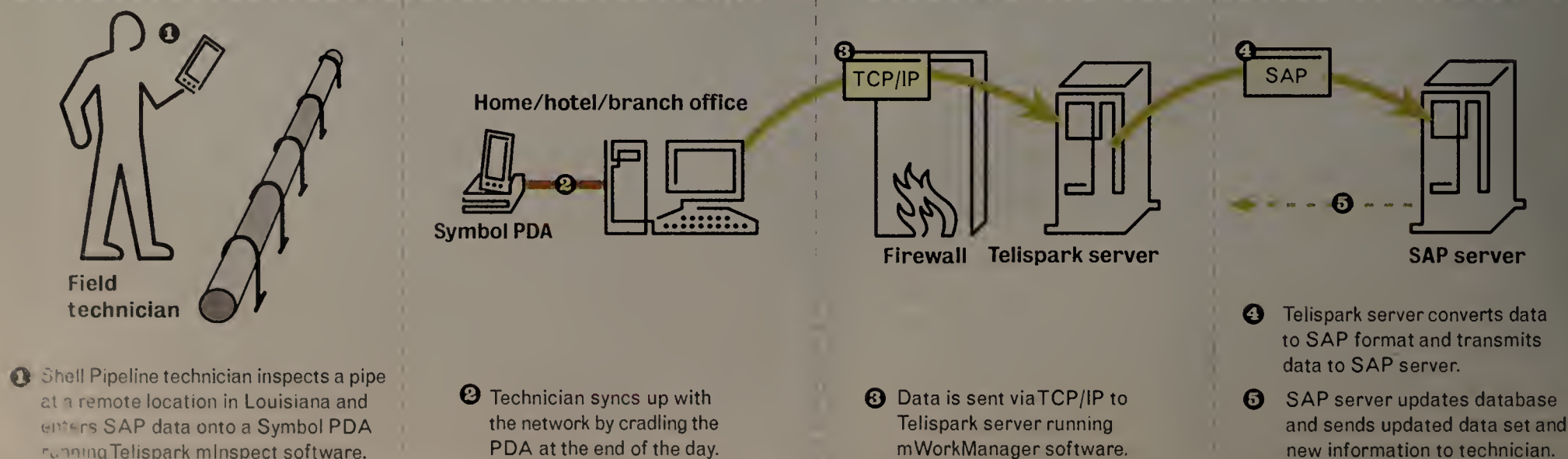
According to Gaughan, one company interviewed by AMR had so much trouble implementing its wireless network that the cost of its mobile project eventually doubled initial forecasts. The problems revolved around ensuring network availability and security/authentication. Another company went through three different handheld devices, unable to find one that matched mobile workers' needs.

True, real-time communication — that is, a wireless network with automatic background synchronization — is expensive and complex. While AMR says this solution might be needed for global logistics and transportation workers, it might be overkill for other employees. For example, delivery drivers whose routes vary little probably would need only a daily cradle-based synchronization.

Shell Pipeline, a subsidiary of Shell Oil Products, went through this decision-making process. Over the past three years, Shell Pipeline undertook an implementation of SAP's ERP system. Initially, the SAP didn't affect Shell Pipeline's field technicians; they continued to mail paper forms

Shell game

This PDA-based mobile system replaces handwritten reports that were mailed to company headquarters at the end of each week.



ARE THE SEVEN DEADLY COMPUTING SINS
IMPACTING YOUR INFORMATION SYSTEMS?

Freeware and shareware are crushing your network.

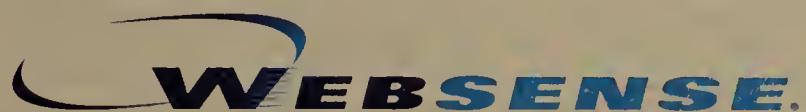


Employee desktops are out of control. Turn to
Websense Enterprise to save your systems
from the viruses, spyware and copyright liability
that come with application overindulgence.

- Block access to freeware, shareware and P2P sites
- Inventory, manage and report on desktop applications
- Prevent application downloads by file type or protocol

With market leading Websense Enterprise software (source: IDC), employee hoarding won't cause anymore help-desk headaches.

Just download a free, 30-day trial of
Websense Enterprise at www.websense.com



NASDAQ: WBSN

to headquarters, where the data was keyed in. This process was inefficient, and the data was spotty and old by the time it made its way into the database.

For a time, Shell Pipeline asked the field technicians to become proficient SAP users; they printed out their work orders at the beginning of the week, and manually entered data into SAP at the end of the week. While this improved the quality of the data, it cut into the field technicians' critical "wrench time." It also created an unhappy workforce; technicians had to work through more than 20 SAP screens to complete each report, and according to a Shell spokesman, they made no secret of their unhappiness with the system.

Shell decided to outfit the techs with handhelds and create applications that would let them enter work-order, inspection and status updates while in the field, and transmit the data to the SAP system.

The company first looked at wireless products for real-time communication, but decided public networks wouldn't support such an ambitious project, especially because the technicians are frequently in rural areas of California and Louisiana, where wireless simply won't work.

Shell settled on offline application access and cradle synchronization instead, using Telispark's mWorkManager and mInspect applications, as well as Symbol Technologies 8100 handheld devices — at the time, the only devices that were rugged enough for the company's needs. Telispark enables two-way communication between field technicians and SAP.

When technicians cradle their Symbol 8100s and transmit back to headquarters, data first goes through the Telispark server, then into the SAP system, updating records as needed. Next, information downloads from SAP, through the Telispark server and out to the field. Shell says the company built special firewalls and devoted massive attention to security protocols at the Telispark-SAP connection point.

J.C. Ehrlich is moving toward wireless, Norce says, but the company has become comfortable with using cradles. Technicians' devices run software that generates a text file and multiple database files. Through either a cradle or a wireless connection, the techs send their day's information to the company's AS/400, which splits the data and routes it to the appropriate application or database.

During the business day, customer service reps set up technicians' appointments for the next day. At night that data is downloaded to handhelds.

Don't overlook training

Training is a vital part of any mobile project because users often are reluctant to alter their work processes, and might resent the new technology. Shell Pipeline overcame this hurdle by selecting 40 volunteers (out of 300 technicians) to become "super users." The volunteers were trained on the Symbol handheld and the Telispark applications, then they trained their peers. Shell Pipeline says this peer training led to rapid acceptance

of the mobile devices, though there are still a few diehards who want to write on the back of an envelope.

The company estimates it's cut down on field technicians' paperwork by 80%; saved the workers up to three hours per week of

paperwork prep time; and slashed six to eight hours of data-entry time per technician per week.

Once Pitney Bowes settled on Siebel and Antenna, the integration was "no different than anything else," Nichols says. The non-technical facets of integration were more challenging, he adds. "We got the end-user community involved in explaining the world they live in. [IT] project team members went out to walk in users' shoes for a day, and we had a lot of workshop sessions to talk about functionality."

Gartner's Jones says that steady technological improvements have pushed other challenges to the fore among companies considering mobile applications. For example, "Before mobility, [field service] engineers would come to a regional office in the morning to fill out forms, pick up new forms and chat around the coffee machine." Equipping those engineers with wireless devices eliminates the need to visit that office daily, which would appear to be a good thing.

However, Jones says studies indicate that "the way field-service engineers learn to fix things is not to read manuals or bulletins — but to talk to each other at the coffee machine. Take that away and you've broken what sociologists call 'the community of practice.'"

As mobile computing technology matures, you can expect these "soft" challenges to gain prominence. In a way, that's good news — many of the technology challenges are now manageable, if you proceed cautiously.

Ulfelder is a freelance technology and business writer in Southborough, Mass. He can be reached at sulfelder@charter.net.

More going mobile

A recent survey by AMR Research found that

one-third
of enterprise employees can be classified as mobile.

SMP

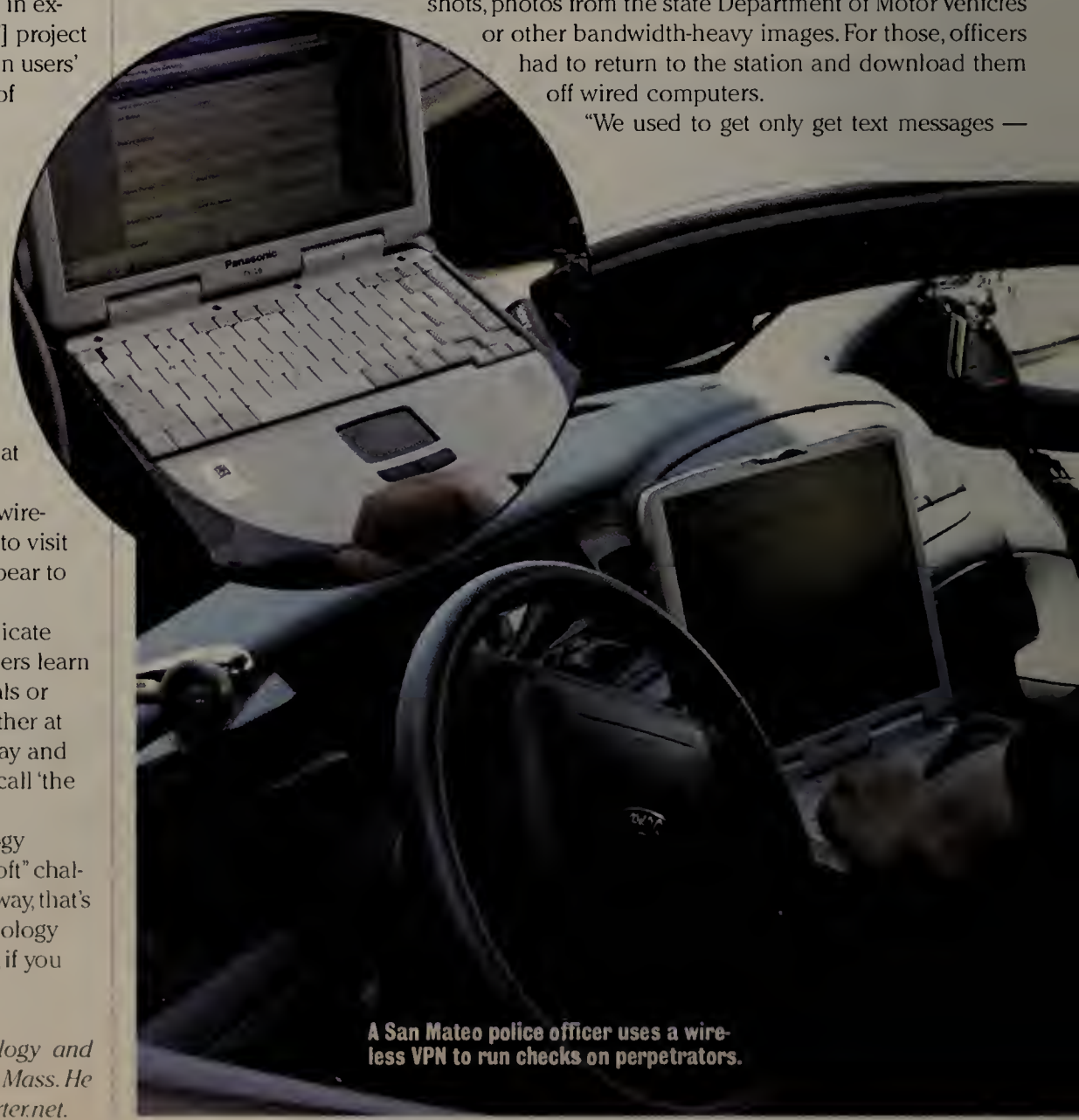
BY DEBORAH RADCLIFF

A high-speed pursuit along the 101 Peninsula ends in a San Mateo neighborhood where the suspect abandons his car and disappears on foot. A San Mateo police officer responding to the call runs the suspect's plates and brings up a photograph on his dash-mounted Panasonic Tough Book.

The California Highway Patrol officer who started the pursuit identifies the suspect from the picture. Then the San Mateo Police Department officer blasts the image to all patrol cars on duty, and the suspect is picked up off the streets 5 minutes later.

Until July, the SMPD's dash-mounted computers could only download small amounts of text, painfully slowly, over a data radio network. And forget about mug shots, photos from the state Department of Motor Vehicles or other bandwidth-heavy images. For those, officers had to return to the station and download them off wired computers.

"We used to get only get text messages —



A San Mateo police officer uses a wireless VPN to run checks on perpetrators.

San Mateo cops create wireless web to snare criminals.

Double

'white male, five-foot-eight, 180 pounds.' That's not very helpful," says Lt. Wayne Hoss, IT director for the SMPD, who received a \$450,000 grant that financed the Wi-Fi hot zone. "Now from our cars, we can put together a photo lineup of potential criminals, show the lineup to victims at the site of the crime, and print it as evidence for later on."

The officers have a square mile of wireless Web access in and around the municipal and entertainment districts on the El Camino Real. By year-end that range will about double.

When they're in range of the Wi-Fi hot zone, patrol officers (and soon, foot and bike patrols over PDAs) have wireless VPN access to the state's Department of Motor Vehicle databases, arrest records and mug

shots, missing children reports, the sex offender registry and emergency dispatchers.

Cell hopping

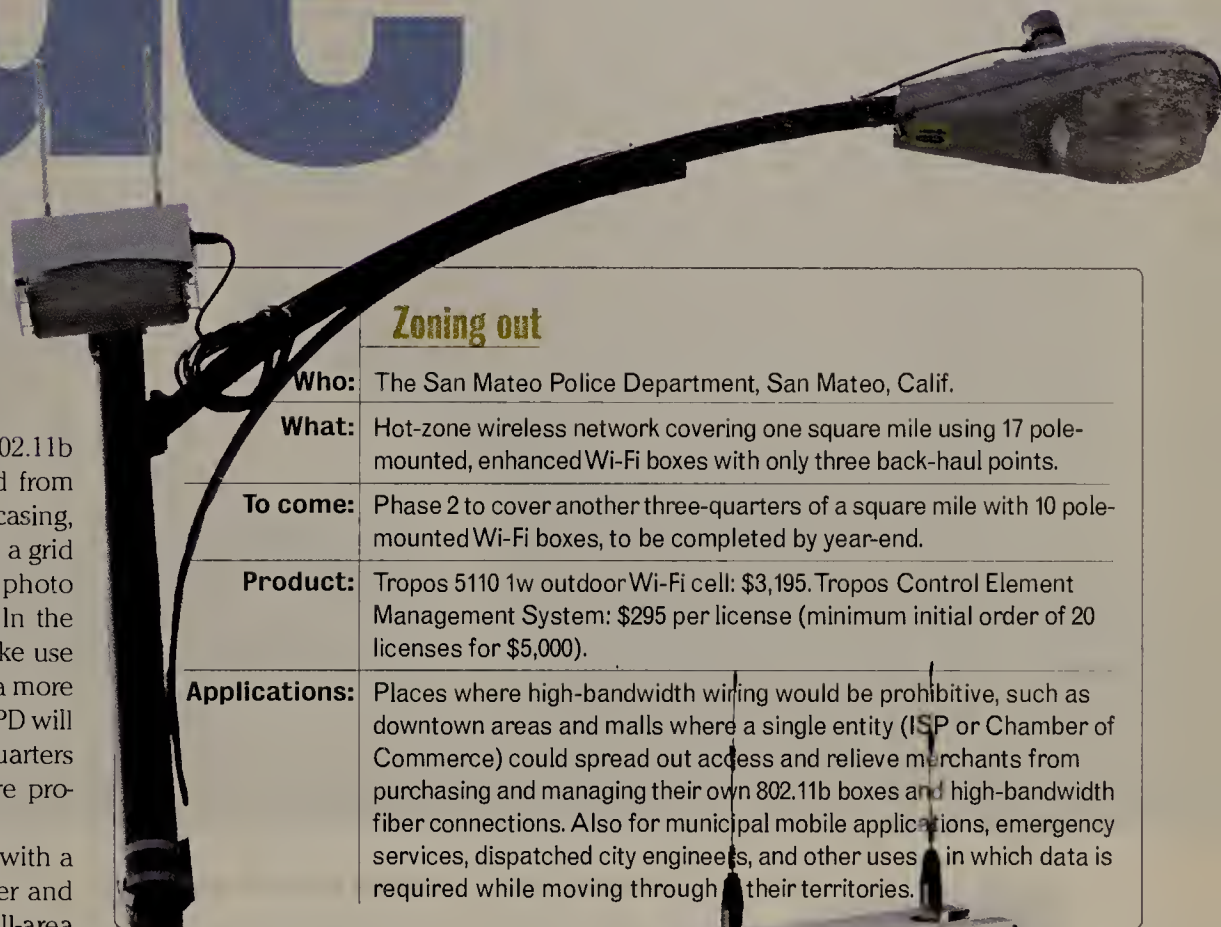
In the first phase, 17 enhanced 802.11b Wi-Fi access points, being protected from the elements in a cast-aluminum casing, are placed about two blocks apart in a grid pattern and plugged into the photo adapters atop the city's light posts. In the next phase, the deployment will make use of newer-generation Wi-Fi cells, with a more powerful 1-watt radio unit, so the SMPD will need only 10 boxes to cover three-quarters of a square mile. The Wi-Fi cells are produced by start-up Tropos Networks.

A hot zone is not to be confused with a hot spot, says Sri Srikrishna, founder and CTO of Tropos. A hot spot is a small-area 802.11b wireless network that plugs into fiber, such as those used in cafe's, airports, hotels, Starbucks and, soon, McDonald's. A hot zone spreads the coverage by using a more-powerful radio, and then hopping signals from cell to cell until they reach a backhaul into the wire, a process called cell hopping.

Of the SMPD's 17 Wi-Fi cells, only three connect to the city's pre-existing network: at the Parks and Recreation Department in the center of town, the fire department on the south and the police station on north.

While not for business campuses, which already have high-bandwidth wire for backhaul points, hot zones are particularly suited to areas where back-haul points are spotty or when the user base is spread out and moving, like at the SMPD, Srikrishna says. Hot zones also are selling in downtown shopping districts. For example in Half Moon Bay, an ISP has installed the Tropos Wi-Fi cells and established a pay-for-use wireless portal for shoppers and diners.

"Nowadays, the concept is extending to anyplace a business wants to provide access," he says. "The challenge is that running wired backhaul into each of these cells is prohibitive because you need high-throughput wires — and they're expensive."



Zoning out

Who:	The San Mateo Police Department, San Mateo, Calif.
What:	Hot-zone wireless network covering one square mile using 17 pole-mounted, enhanced Wi-Fi boxes with only three back-haul points.
To come:	Phase 2 to cover another three-quarters of a square mile with 10 pole-mounted Wi-Fi boxes, to be completed by year-end.
Product:	Tropos 5110 1w outdoor Wi-Fi cell: \$3,195. Tropos Control Element Management System: \$295 per license (minimum initial order of 20 licenses for \$5,000).
Applications:	Places where high-bandwidth wiring would be prohibitive, such as downtown areas and malls where a single entity (ISP or Chamber of Commerce) could spread out access and relieve merchants from purchasing and managing their own 802.11b boxes and high-bandwidth fiber connections. Also for municipal mobile applications, emergency services, dispatched city engineers, and other uses in which data is required while moving through their territories.

Tropos' wireless routing technology sends packets from cell to cell following the most efficient route to the nearest fiber trunk by examining signal characteristics in network paths available.

"Cell hopping is very much conceptually like the Internet," says Srikrishna, who adds that in the 1970s, the military used this concept to try and create wireless ad hoc networks to connect troops on the battlefield.

Securing the signals

With any wireless installation, securing the laptops, encrypting the data in transit, monitoring and filtering firewalls at the entrance to the fiber network are paramount, says Diana Kelly, wireless security expert and security strategist at Computer Associates.

For security, the SMPD uses a NetMotion VPN for point-to-point, 128-bit encryption. Tropos' traffic filtering is built into all Wi-Fi cells, which are monitored for performance through Tropos' SNMP-compliant monitoring and management server called Patrol. In addition, the SMPD put a firewall/intrusion-detection server between the wired network and the Wi-Fi cell gateways.

But during deployment, laptop security



A few Tropos Wi-Fi cells are already in place in the San Mateo area.

got a little overlooked. Aside from two-factor authentication — one for computer access and the second for access to the officer's Web portal, LawNet — the laptops have no firewalls and can't be monitored for security policy compliance. But Hoss says he's talking to security vendor, Symantec, about putting firewalls on the laptops.

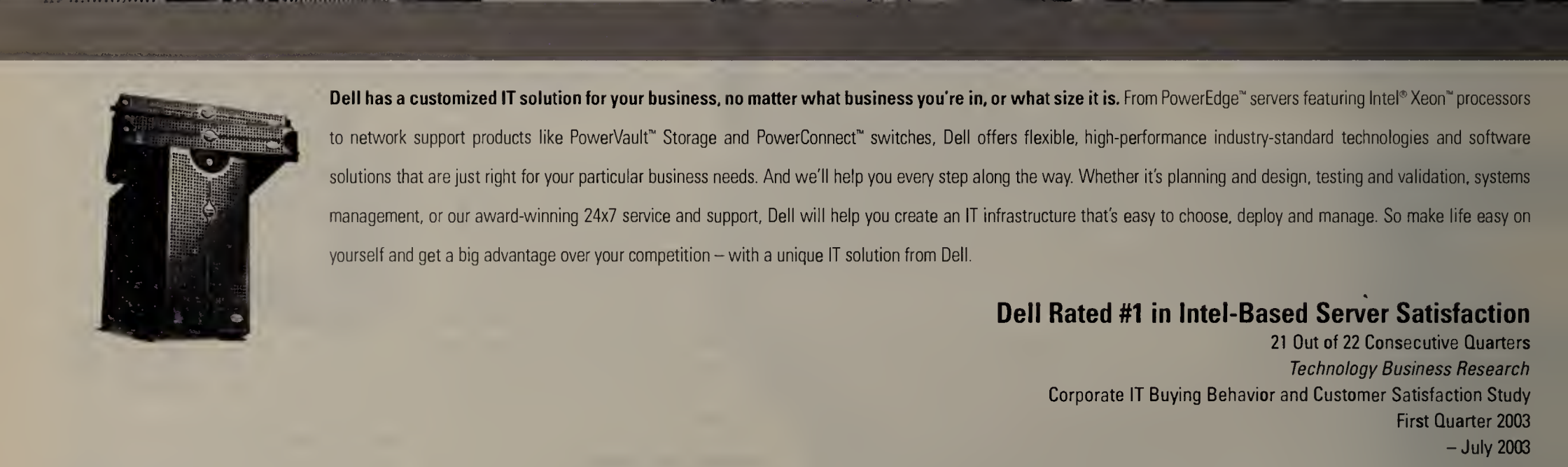
"We're getting on that, especially now that one of our computers has a virus on it and we can't find which one it is," Hoss says. "We had a numbering system. But the officers keep moving the computers from car to car because they save stuff locally on their drives, usually an unfinished report, that they want to get back to."

Radcliff is a freelance writer in Northern California. She can be reached at denise@radcliff.com.

Small Medium Business

A world of IT solutions.
Whatever your world.

A black and white photograph of a smiling man in a light-colored shirt standing in front of a large, perforated metal structure, possibly a ventilation system or a large door. In the background, two other people are visible, slightly out of focus.



– July 2003

Call M-F 7a-8p Sat 8a-5p CT

File&Print Servers

From entry-level servers to robust rack-mountable solutions that fit existing infrastructures.

NEW POWEREDGE™ 400SC SERVER

- Small Business Value Server**
- Intel® Celeron® Processor at 2GHz
 - Upgradable to Intel® Pentium® 4 Processor at 3.20GHz with 800MHz Front Side Bus**
 - 128MB 333MHz ECC DDR SDRAM (Up to 4GB)
 - 40GB (7200 RPM) IDE Hard Drive
 - Upgradable to 240GB of Internal Hard Drive Storage
 - Embedded Intel® PRD Gigabit™ NIC
 - 1-Yr 24x7 Dedicated Server Phone Tech Support
 - 1-Yr Next Business Day On-Site Service³
 - Small Business Pricing

\$399 E-VALUE Code: 18603-S21003g

NEW POWEREDGE™ 650* SERVER

- Low-Cost, General-Purpose 1U Server**
- Intel® Pentium® 4 Processor at 2.40GHz
 - Upgradable to Intel® Pentium® 4 Processor at 3.06GHz
 - 128MB 266MHz ECC DDR SDRAM
 - Upgradable to 3GB of SDRAM
 - 40GB (7200 RPM) IDE Hard Drive
 - Upgradable to 146GB of Internal Hard Drive Storage
 - ATA 100 IDE RAID Controller Available
 - Intel® PRO Gigabit™ NIC
 - 3-Yr Next Business Day On-Site Service³
 - Small Business Pricing

\$1199 as low as **\$32/mo.**, (46 pmts.²) E-VALUE Code: 18603-S21011g

Database&Web Hosting Servers

Application-specific servers that can meet most any challenge.

POWEREDGE™ 2600 SERVER

- High-Performance Tower Server**
- Intel® Xeon™ Processor at 2.40GHz
 - Dual Intel® Xeon™ Processor Capable (Up to 3.06GHz)
 - 512MB 266MHz ECC DDR SDRAM
 - Upgradable to 6GB of SDRAM
 - 36GB (10K RPM) Ultra320 SCSI Hot-Swap Hard Drive
 - Active ID Bezel for Manageability
 - 3-Yr Next Business Day On-Site Service³
 - Small Business Pricing

\$1799 as low as **\$49/mo.**, (46 pmts.²) E-VALUE Code: 18603-S21017g

POWEREDGE™ 1750* SERVER

- 1U High-Performance Rack Server**
- Intel® Xeon™ Processor at 2.40GHz
 - Dual Intel® Xeon™ Processor Capable (Up to 3.06GHz)
 - 256MB 266MHz ECC DDR SDRAM (Up to 6GB)
 - 36GB (10K RPM) Ultra320 SCSI Hot-Swap Hard Drive
 - Integrated Dual-Channel Ultra320 SCSI Controller
 - Active ID Front Bezel for Monitoring System Health
 - 3-Yr Next Business Day On-Site Service³
 - Small Business Pricing

\$1899 as low as **\$51/mo.**, (46 pmts.²) E-VALUE Code: 18603-S21018g

4-Way Servers

Handle intense networking needs with ease.

POWEREDGE™ 6600* SERVER

- Quad Processing Power in Rack-Mountable or Tower Form Factors**
- Up to Four Intel® Xeon™ Processors at 1.50GHz
 - Up to 32GB DDR266 ECC SDRAM
 - Up to 1752GB Maximum Internal HDD Storage
 - Embedded Ultra SCSI Adaptec® (160MB/s) Controller
 - Standard Hot-Swap Hard Drives, Hot-Swap Redundant Fans and Hot-Swap Redundant Power Supplies
 - 10 Hot-Plug PCI-X Slots

starting at **\$3999** as low as **\$107/mo.**, (46 pmts.²) E-VALUE Code: 18603-S21039g

Storage Options

Enhance your server capabilities.

DELL™ POWERVAULT™ 725N NAS

- Optimized File Storage Across the LAN**
- Intel® Celeron® Processor at 2GHz
 - 384MB DDR SDRAM (Up to 3GB)
 - 4x40GB (160GB) IDE Hard Drives
 - Up to 1 TB of Internal Storage Capacity
 - Microsoft® Windows® Powered Network Attached Storage

\$1799 as low as **\$49/mo.**, (46 pmts.²) E-VALUE Code: 18603-S21017

DELL/EMC

If you have more than 300GB of storage, visit **www.dell.com/storage4mybiz** for low prices on Dell/EMC storage arrays.

Services

Purchase

Dell offers a wide range of reliable, award-winning technology, all delivered from a single point of contact -- and our expert sales associates are there to help you find the technology that's right for your business.

Installation -- Starting at \$199

Once you've selected the right technology, Dell can help you get it up and running quickly and cost-effectively with our custom on-site installation and configuration services.

Training & Certification -- Starting at \$100

After installation, Dell can help turn your employees or IT staff into experts on your new technology through a variety of training and certification courses -- helping increase your business' long-term productivity.

Service & Support

The support doesn't end at the sale. Dell's award-winning service and support offerings help ensure that your new network remains up and running -- with Web, phone or on-site service³ and support.

Network Switches

Scalable, high-performance switches to enhance your network.

POWERCONNECT™ 3324* SWITCH

- High-Performance Workgroup Switch**
- 24 Fast Ethernet Ports plus 2 Gigabit Uplinks (2 Copper and 2 SFP Transceiver Combo Slots for Fiber)
 - Stacking Functionality of Up to 192 Ports
 - Advanced Network Management and Security Features
 - Industry Standard CLI and Easy-to-Use Web Interface
 - 3-Yr Next Business Day Advanced Exchange Service⁵ Standard

\$499 as low as **\$14/mo.**, (46 pmts.²) E-VALUE Code: 18603-S11004

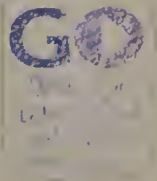
Solutions that fit. Easy as



Click **www.dell.com/bizsolutions** Call **1-877-263-3355**

toll free

exceed \$25,000. If your order exceeds \$25K, a Dell Financial Services rep will contact you to process your documentation. Taxes, fees and shipping charges are extra and may vary. Not valid on past orders or financing. QuickLoan arranged by CIT Bank to Small Business customers with approved credit. **This term indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1GB/sec. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required. Technical support and replacement part or unit (depending on service contract) will be dispatched, if necessary, following phone-based troubleshooting in advance of receipt of returned defective unit. Service may be provided by third-party provider. Subject to parts availability, geographical restrictions and terms of service contract. Service timing dependent upon time of day call placed to Dell. Defective unit must be returned. Replacements may be refurbished. U.S. only. Dell, the stylized E logo, E-Value, PowerEdge, PowerConnect and PowerVault are trademarks of Dell Inc. or its subsidiaries. Intel, the Intel Inside logo, Intel Xeon, the Intel Xeon logo, Pentium and Celeron are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. ©2003 Dell Inc. All rights reserved.



**TESTER'S
CHOICE**
Joel Snyder



Diane Greene is my hero

Early this year I got to meet Diane Greene, CEO and one of the founders of VMware, maker of one of my favorite lab tools.

Most CEOs aren't my cup of tea. They get

picked for those spots based on leadership potential, vision and ability to attract piles of cash from venture capital firms. All this is great for them, but not very interesting for a techie like me, who is down here in the

trenches, getting dirty writing code.

When I met Greene we spent a half-hour talking about the internals of the company's flagship host-emulation software, VMware. We chatted about the ugly part of emulating a CPU without breaking things, restarting instructions, register models and memory management. Fascinating stuff. I came away impressed. But the last thing she said to me stuck: "Don't just test our software, use our software."

I did and that is why she is my hero. Her software lets me run multiple emulated Intel virtual machines on top of one physical machine, with each virtual machine running its own copy of whatever operating system I want.

In the lab, we've traditionally used removable hard drives to handle our need to run several operating systems on the same machines. We'll create a "master" for an operating system and then use Symantec's Ghost (another great lab tool) to clone it onto hard drives. For every new product tested, we slide in a hard drive, boot it up and give each vendor a clean slate to run on. But this setup limits us to testing one vendor's product at a time.

In our recent anti-spam test (see www.nwfusion.com, DocFinder: 7624) the limitations posed by our typical technique was a showstopper. I needed to have 16 products running at once. I borrowed two copies of VMware's GSX server, put 3G bytes of memory in two of our dual-CPU lab systems, created eight virtual machines on each server, and voilà, I had 16 speedy, perfectly isolated virtual systems running a mix of Windows and Linux. With a tool like VMware, my job became a whole lot easier — and I did it all in 4U of rack space.

One of the fears about emulated systems is that they will be slow. That wasn't my experience. During configuration and installation, VMware "felt" as fast as the underlying hardware running without VMware. If I put it in full-screen mode, it was easy to forget that I was running on an emulator. The virtual machines never knew what was happening to them. They happily got their own IP addresses, crashed, rebooted, wrote to private disk space and went on about their business without any conflicts.

Of course, VMware isn't perfect. It takes a lot of memory (but so does Microsoft Office). My applications weren't badly behaved, thrashing the disk or paging a lot, which would have made things uncomfortable. I wasn't testing performance or some special I/O subsystem or encryption board for which direct access to the hardware would have been critical. It's not the ultimate answer to every testing problem. But it saved me from having to buy 16 systems, power them, find KVM ports, air condition them and stack them somewhere.

Diane: When's your birthday? I want to send you flowers.

Snyder is a senior partner at Opus One in Tucson, Ariz. He can be reached at Joel.Snyder@opus1.com.

Complimentary Event for Qualified Attendees!

AN ENTERPRISE-ADVANCING TOUR

December 2, 2003 ▶ Framingham, MA ▶ Sheraton Framingham Hotel

December 4, 2003 ▶ Richardson, TX ▶ Omni Richardson Hotel



The New Data Center: Powering the Enterprise

It's about consolidation. Virtualization. Automation. The power of technologies like blade servers. And the need to prove and improve your ROI. It's the new data center and it's all about making your enterprise fully metered, fully accountable, and fully effective. Managing data and serving information in ways that make your company more competitive. And you more central to its success.

That's why you are invited to **The New Data Center: Powering the Enterprise**. A special Network World Technology Tour event for professionals who want a practical mission to go with their strategic vision. It's FREE to qualified professionals...but you must register in advance for one of the limited number of seats available.

This event is limited to Network and IT professionals involved in the evaluation, purchase and implementation of data center products and services.

REGISTER NOW! ONLINE AT
Online at www.nwfusion.com/events/datacenter2
or call 1-800-643-4668



MODERATOR
Johna Till Johnson
*President, Chief Research Officer, and
Founder of Nemertes Research*

Timely topics & takeaways

- new practices in managing and modifying the data center
- new paths to consolidating server and storage resources
- new ways to maximize resources through virtualization and automation
- new techniques for managing mixed operating system environments
- new strategies for implementing SLM and monitoring SLAs
- new applications that take advantage of data center infrastructure

Mission critical for:

- ▶ Network Managers
- ▶ System Architects
- ▶ IT Executives
- ▶ CxOs

PLATINUM PRESENTING SPONSORS:

concord

**FOUNDRY
NETWORKS**

inkranetworks

NETSCALER

GOLD EXHIBITING SPONSOR:

VIEO

To join sponsors of this premier Network World Event, please contact Andrea D'Amato at 508-490-6520 or adamato@nww.com

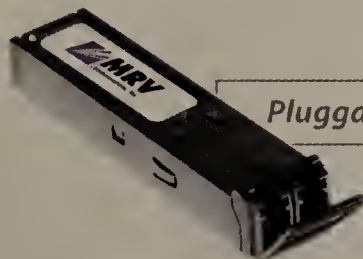
Let MRV Build Your WDM Network



Carrier DWDM



CWDM



Pluggable WDM



From Simple Building Blocks to Carrier Grade Solutions...

Whether your application is Campus Enterprise, Cable MSO or Metro Access, MRV has a flexible optical solution that fits within your budget. Our CWDM and DWDM systems help you increase your bandwidth capacity, or offer wavelength services -- from T1/E1 to OC-48, and any Ethernet or Storage protocol. ♦ We provide solutions from 'do-it-yourself' WDM with our pluggable optics (SFP & GBIC) - including digital diagnostics, a powerful management tool at the optical interface level - all the way to full-size modular systems with 6+ DWDM wavelengths. ♦ Since 1988, we have provided connectivity solutions for networks that scale in size, speed, distance and complexity. In fact, some of the world's largest networks rely on our switches, routers, optical transport systems and remote presence equipment.



Turn to us for your *Connectivity Unlimited™* needs

mrv.com/nwdm

Management

Strategies

■ CAREER DEVELOPMENT
■ PROJECT MANAGEMENT
■ BUSINESS JUSTIFICATION

Power to the people

Network executives get bright ideas by associating with IT user groups targeted at their specific industries.

■ BY LINDA LEUNG

The collapse of the once-influential Communications Managers Association last August and of the International Communications Association in the first quarter of 2002 points to the fading relevancy of such broad-based user groups established during the industry's early years. Because general information about technology is plentiful, many busy network executives are turning to smaller, targeted user groups.

Along with providing network opportunities, some smaller groups let IT professionals work together to define technology standards for their specific industries. Other groups offer repositories of information targeted to their membership profile. Here are some industry-specific user groups and why they are popular with their members:

Wall Street Technology Association

WSTA was established 36 years ago as a forum for IT professionals in the finance business. It holds eight seminars and two conferences per year, and publishes the *WSTA Ticker Magazine*, which provides case studies and reports on technologies.

According to Mark Sanders, WSTA president and CTO for New York asset management firm John A. Levin & Co., the association is unbiased regarding technology. "I don't feel I have enough vision or depth to want to push the group behind one technology. It would be more beneficial to the industry if we were a knowledge capital and educated everyone to be well-educated buyers," he says.

John Pagliaro is project management coordinator at brokerage firm Garban Intercapital, which has been a member company of WSTA for 12 years. He says membership has been invaluable in helping Garban pick from the slew of vendors that contacted the company when it moved to a new facility in Jersey City, N.J., after the Sept. 11 terrorist attacks. "If we know the vendor already has some success in our sector [through reading case studies in *Ticker*] that gives us confidence," he says.

Association for Cooperative Operations Research and Development

Based in New York and founded in 1970, ACORD is a global association that is developing XML standards for the insurance industry.

ACORD originally was set up to standardize the paperwork that is generated and passed between insurers. In the 1980s it developed insurance industry-specific electronic data interchange standards, and now it is creating business messages and mappings based on XML.

The organization also provides a safe haven for its members, says Rick Gilman, ACORD vice president of communications. "We're able to get competitors around the table to discuss standards, which otherwise couldn't be done without the antitrust protection ACORD offers," he says.

Insurance company American National of Galveston, Texas, has been an ACORD member

for a year. "At ACORD, insurance companies can talk frankly without being seen as though we're in cahoots," says Carol Chapman, a senior staff analyst for the company.

American National is piloting the use of Extended Tabular Markup Language (XTbML), a standard for the transfer of tabulated data that ACORD helped to define. According to Chapman, XTbML lets insurance companies streamline the way they communicate with each other and reduce the chances of miscommunication errors during data transfer.

Standard for Technology in Automotive Retail

Set up in 2001, STAR is working on developing industry-specific XML standards for communications among dealers and auto manufacturers. So far, it has defined 22 XML formats, including Credit Application and Parts Order, and STAR says there could be hundreds more.

In November, STAR plans to publish its Dealership Infrastructure Guideline, aimed at helping dealers install LANs and become Internet-ready.

"The benefit to manufacturers like Toyota is that more than half the work has been done in designing an infrastructure [for communications between manufacturer and dealer]," says Tom Campisi, STAR communications chair and architecture analyst at Toyota in Torrance, Calif.

He adds that dealers that sell vehicles from multiple manufacturers could save hundreds of thousands of dollars if they adopt the standard XML formats, because they would not have to deploy separate communication systems for each of the manufacturers with which they deal.

Massachusetts Health Data Consortium

MHDC members are healthcare providers, insurance companies and government agencies that operate in Massachusetts. The group holds a number of forums aimed at specific job roles such as CIOs, privacy officers, security officers and Webmasters, plus offers general information about health-related technologies and regulations.

MHDC is working on several security initiatives to help its members meet the requirement of the Health Insurance Portability and Accountability Act. It is working with the Open Group to drive compatibility between e-mail vendors that support the secure S/MIME gateway.

Claudia Boldman, director of policy and architecture for the commonwealth of Massachusetts' IT division in Boston, says an earlier MHDC pilot of S/MIME gateway interoperability inspired the state government last year to introduce its own pilot test with MHDC and two other member groups. She says that as a neutral organization, MHDC is in an ideal position to promote vendor interoperability, which would not have been easy for a state government to do for fear of being mistaken as a government mandate or a government-sponsored program.

"Because MHDC is a large association that has members of all sizes, it provides us with a representative cross-section of our business partners to ensure that our approach to secure e-mail works for both large and small organizations," Boldman adds.

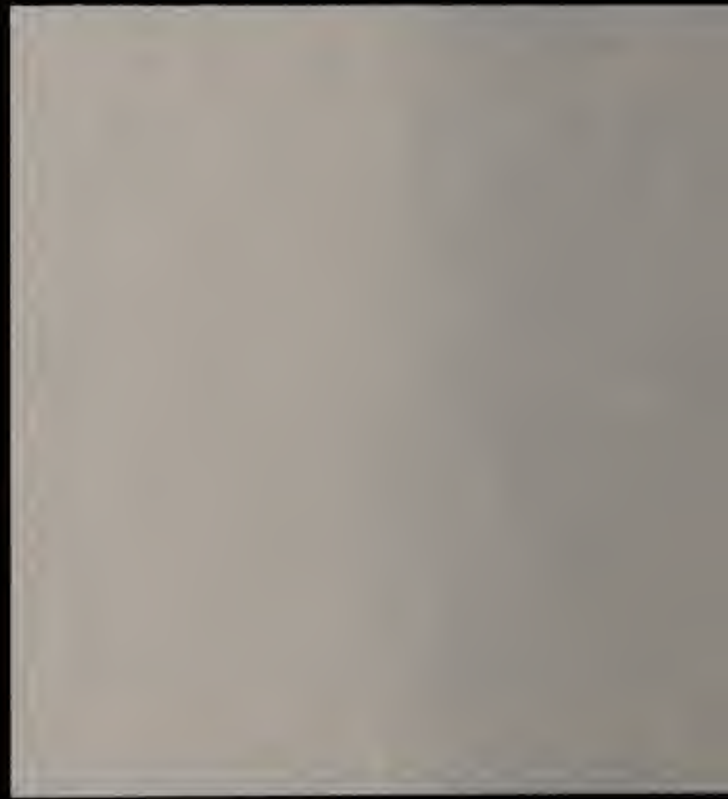
Tom Coffey, chief security officer at Cambridge Health Alliance, a hospital network that has been a member organization for five years, also praises MHDC's S/MIME.

"Associations need to have substance, quality and directly provide value for members — S/MIME is one example," says Coffey, who is a member of MHDC's Security Officers Forum. MHDC's local meetings also are a boon because many organizations have cut travel budgets. ■



ALEX NABAUM

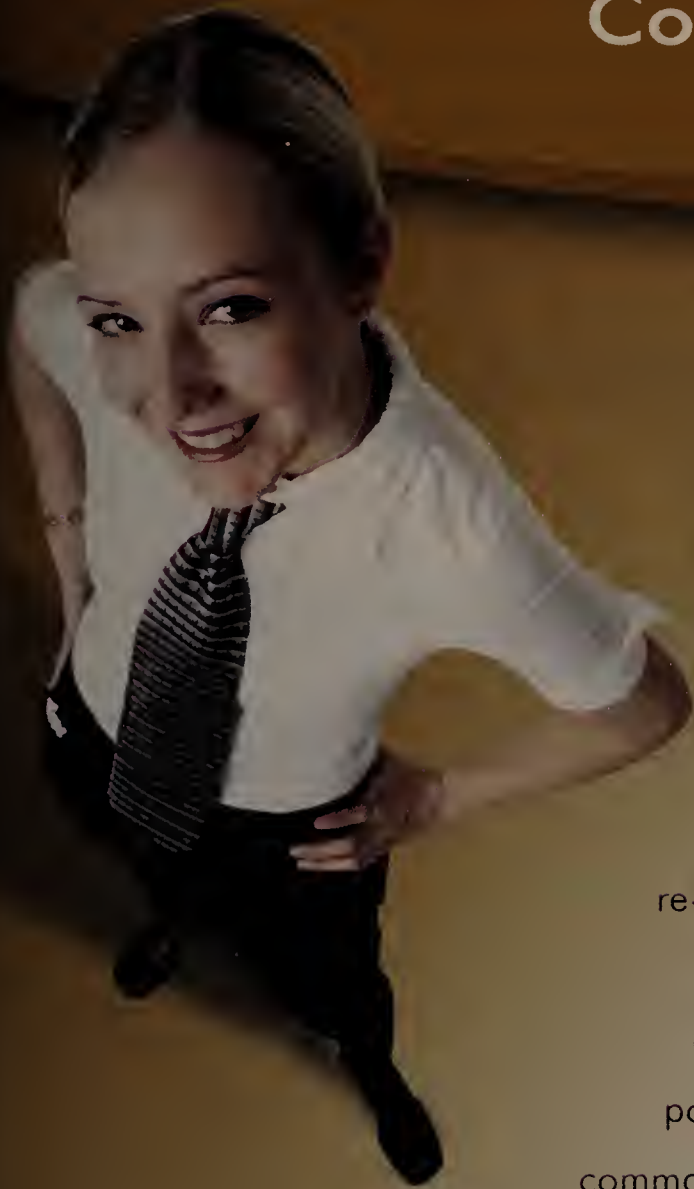




Console Management

Power Management

Command Your Network With Cyclades



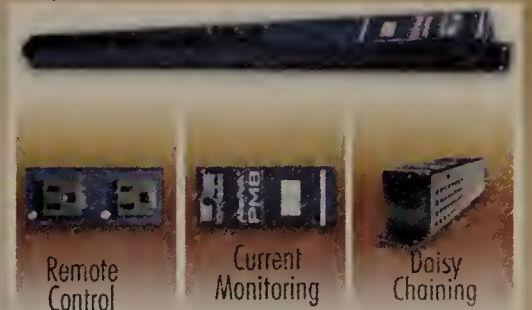
Selecting the right components for your network is often a challenging decision. With our AlterPath™ PM8, you can remotely re-boot your system with just a few mouse clicks. By integrating the AlterPath™ PM8 with our award-winning AlterPath™ ACS, you combine power and console management. Now you can command all your infrastructure with secure authentication and bulletproof encryption as demanded by today's mission-critical applications all in one single session - anytime, anywhere.

AlterPath™ ACS



	Integrated Power and Console	Console and power control from one session, no need to memorize ports and addresses
	Security	SSH v2, strong authentication, encryption and IP filtering on both power and console access
	Daisy Chain	Daisy chain power distribution units to control any number of devices from a single serial port

AlterPath™ PM8



"Best Hardware for
Linux since 1995"

www.cyclades.com/nw
1.888.cyclades
sales@cyclades.com


cyclades
Everywhere with you

BUY
UPTIME
.COM

www.buyuptime.com

Network Cables

Cisco and Fiber
Cabling

Printer, Modem, VGA
Cables and Adapters

Enclosures

Enclosure Accessories

Power Adapters

Cooling Solutions

Laptop Accessories

Racks

Rack Accessories

Power Distribution
Devices

Security Hardware

Surge Protectors

UPS Cables and
Accessories

UPS Management
Peripherals

UPS Management
Software

UPS Replacement
Batteries

UPSs

BuyUptime.com

Your One-Stop Shop for high availability products

High Availability Made Easy

BuyUptime.com is a leading supplier of end-to-end UPS power, thermal cooling, and management solutions. Visit us today to find the high availability solution that is right for you.

Power Protection and Management Solutions!

Starting at
\$179.49*

Power Protection for Servers and Network Peripherals

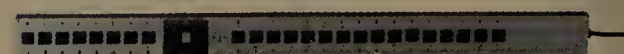
- Protects your hardware and data by supplying network-grade battery back-up power
- Robust diagnostics allow network administrators to solve problems before they happen
- Protects anything from single servers to fully populated racks
 - Includes Power Management software with purchase!



*Prices include standard shipping

Network Power Management Accessories

- Metered outlet strips for Racks/Enclosures provide alarm thresholds, toolless mounting abilities
- Portfolio of software and enhancement cards for administration and monitoring of APC devices
- Many power management peripherals to supply your application needs



Starting at
\$59.49*

Order via our promo page and save

Visit <http://promo.buyuptime.com>

and enter Key Code: n667y

Or Call Toll Free:

888-288-8843 to order.

Fax: (877) 411-2080 • e-mail: customerservice@buyuptime.com
801 Corporate Centre Drive, St. Charles, MO 63304 • BY2A3EP-US
©2003 Systems Enhancement Corp. All Trademarks are the property of their owners.

Kaveman

COMPLETE REMOTE KVM CONTROL VIA TCP/IP



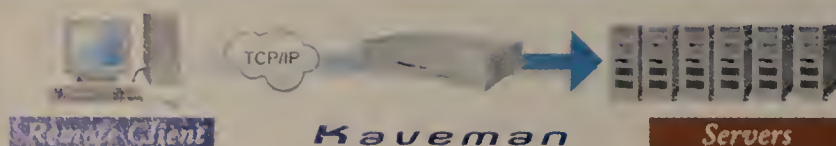
2003 Winner
of the Best Of Show Award

Extend Your IT Reach Beyond The Server Room



Kaveman 16 - Allows up to 6 simultaneous users connecting 16 servers

How does Kaveman work



Available in 1, 8 and 16 channel versions



Remote Keyboard, Video and Mouse Access via Web Browser

You can access to the BIOS level of your servers or serial devices anytime, anywhere with full KVM control via a Web Browser or VNC.



24/7 Automatic Server Monitoring

Kaveman monitors server functions and notifies you before any server problems become critical.



Highly Secure Deployment

Kaveman utilizes 128-bit SSL encryption for all keyboard and mouse data and supports SSH and VPN environments. In addition, Kaveman offers specialized security features including the Turtle mode and Stealth mode.



Non-Intrusive To Your Network Environment

As a stand alone device that requires no additional software or hardware to install, Kaveman minimizes the potential impact on your servers.

Remote Power Cycling

You can power cycle, turn on/off any connected device over IP simply using a common Browser.

DIGITALV6
The Engine of Innovation

www.digitalv6.com 1-866-922-2333

Mention Promotion Code 'NETWORK WORLD' when purchasing the Kaveman.

Globally Secure.

Firewall Experience at Work.



**Global
Technology
Associates, Inc.**

1-800-775-4GTA • www.gta.com • info@gta.com

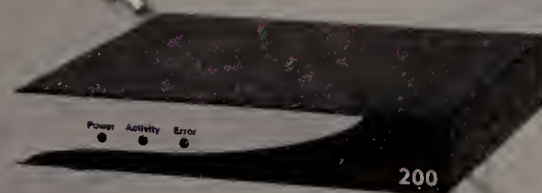
GTA's Enhanced Product Line

Products	Options	News	Support
----------	---------	------	---------

GB-1500	Ctrl-1
GB-1200	Ctrl-2
GB-750	Ctrl-3
GB-500	Ctrl-4
GB-200	Ctrl-5

GB-200

NEW!



The GB-200 entry level firewall for remote or branch offices with minimum networking demands.

- Two standard configurations - 10 or 25 concurrent users
- Upgradeable to 50 concurrent users
- Three 10/100 Ethernet interfaces, including DMZ
- ICSA 4.0 Corporate certified GNAT Box System Software

Big security for small offices!

One of five new firewall appliances in the GTA Firewall Family.

Web Based Boot Bar

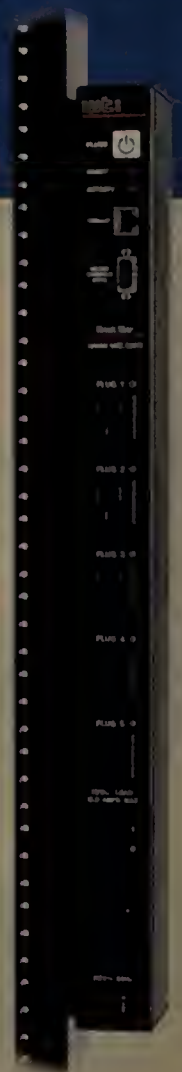
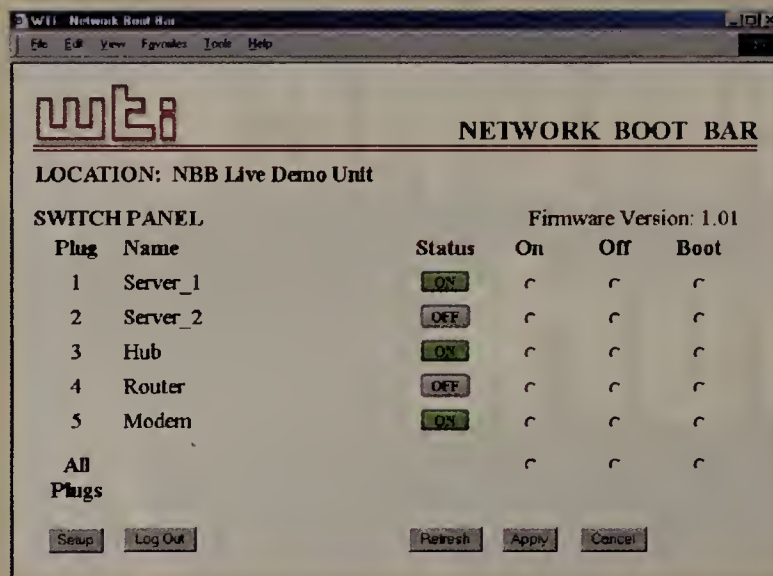
NEW!

Yes, you can Switch Power over the Internet...

Servers, routers, and other electronic equipment sometimes "lock-up," often requiring a service call to a remote site just to flip the power switch to perform a simple reboot...

The NBB "Mini" Boot Bar Power Switch, gives you the ability to perform this function from anywhere!

- Web Browser Access for Easy Operation
- Telnet and Serial Access
- Encrypted Password Security
- Five Individual Outlets
- Power-up Sequencing
- On / Off / Reboot Switching
- Versatile Zero U Mounting



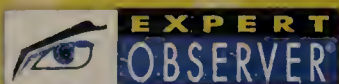
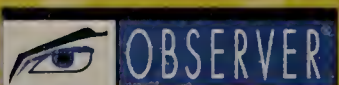
www.wti.com

(800) 854-7226

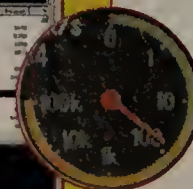
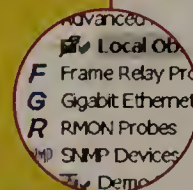
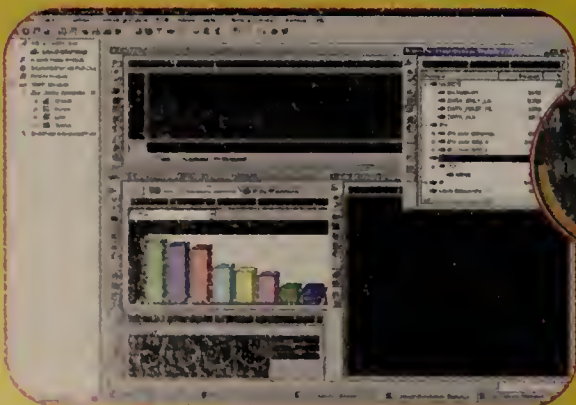
western telematic incorporated
5 Sterling • Irvine • California 92618-2517

"Keeping the Net...Working!"

There Is A Better Way To Troubleshoot & Manage Your Network



Quickly Pinpoint, Pre-solve & Prevent Network Problems



Observer®—Quickly identifies network trouble spots and costs thousands less than expensive hardware-based analyzers.

Observer provides metrics, capture, and trending for both shared and switched environments.

- **Full packet capture and decode** for over 500 protocols, including TCP/IP (v4 & v6), NetBIOS/NetBEUI, XoIP, SNA, SQL, IPX/SPX, Appletalk and many, many more!
- **Switched mode sees all ports** on a switch gathering statistics from an entire switch or capture/statistics from any port(s)
- **Long-term network trending** collects statistical data for days, weeks, months, even years
- **Real-time statistics** include Top Talkers, Bandwidth, Protocol Statistics, and Efficiency History
- **Ethernet (10/100/Gigabit), Token Ring, FDDI, and Wireless 802.11**—no need to purchase separate tools

- **Windows® 98/Me/NT/2000/XP compatible**
- **Over 4,000 frame types recognized**

Expert Observer—Identifies problems and provides Expert information in plain English.

Includes all of the features of Observer plus real-time and post-capture expert event identification and analysis—new SQL and Frame Relay experts add to the many other protocols covered, time synchronization technology, and modeling of network traffic.

Observer Suite—The ultimate tool for the most demanding power user.

Provides a full complement of tools that includes all of the features of Expert Observer plus SNMP management, RMON console/Probe and Web reporting. Includes one remote Probe.

If you have any network problems, find out the cause with Observer, Expert Observer, or Observer Suite.

Call 800-526-7919 or visit us online for a full-featured evaluation:

www.NETWORKINSTRUMENTS.com

US (952) 932-9899 • Fax (952) 932-9545 • UK & Europe +44 (0) 1959 569880 • Fax +44 (0) 1959 569881



Observer
\$995

Expert
Observer
\$2895

Observer
Suite
\$3995

Need SSH Console Management?

SSH or Out-Band Access to Consoles at Remote Locations

NEW!

- Secure Shell (SSHv2) Encryption
- Simultaneous SSH or Telnet
- Non-Connect Port Buffering
- SYSLOG Reporting
- SNMP Capability
- Any-to-Any Port Switching
- IP Security Features
- 10/100 Base-T Ethernet Port
- Port-specific Password Protection
- Data Rate Conversion
- 115/230VAC or -48VDC Models

The **SCM-16** Secure Console Management Switch provides in-band and out-of-band access to RS232 console ports and maintenance ports on UNIX servers, routers and any other network elements which have a serial console or craft port. System administrators can access serial maintenance ports over the network via SSH connections and simple menu-driven commands, or through a discrete TCP port connection mapped directly to one of the SCM-16 serial outputs.



Visit website for complete NetReach™ product line.

(800) 854-7226 • www.wti.com

5 Sterling • Irvine • California 92618-2517
(949) 586-9950 • Fax: (949) 583-9514

wti

western telematic incorporated

Reaching New Heights in Remote Reboot AC or DC Power Management

Don't let server lock-up knock you off the mountain. Spectrum Control's SMARTstart power distribution units with remote power management capability allow you to monitor, sequence and reboot your servers and network equipment from any remote location. These AC or DC rack mounted, off-the-shelf solutions feature several methods of communication, including advanced Web Browser access and greater power management than you ever imagined.

- Reboot via telnet and other convenient interfaces
- Lower costs through reduced network downtime and field service visits
- SMARTstart PDU's offer customization and are upgradable
- Menu-driven user friendly interface and secure password protection
- Global access to monitor, reboot and sequence outlets
- Email alerts & SNMP Traps for immediate system status notification

**ALL AT AN UNBELIEVABLE
OUT-OF-THE-BOX PRICE!**



POWER

To learn more call 814-474-2207
or for online data sheets, go to
www.specpower.com/remot22

We're looking for Resellers (VAR'S)
and Distributors to join
our SMARTcircle

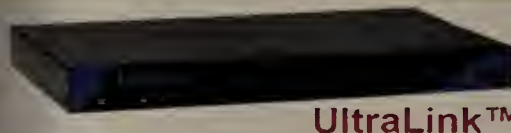


SPECTRUM CONTROL INC.

Power Technologies Group
www.specpower.com/remot22

1 to 1000 remote servers are within your reach
Over IP, Fiber, or Cat 5

Access your server(s) from **ANYWHERE**
with the push of a button!



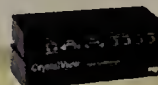
UltraLink™

REMOTE KVM ACCESS OVER IP

- Connect to remote computer over Ethernet or dial-up
- Single, dual, quad models
- Local KVM port to access computers at UltraLink unit
- Modem port with dial-back security
- Up to 1280x1024 resolution, supports all platforms
- Easy to install, give it an IP address and run the remote client, no licensing required
- Scaling of computer image reduces amount of data sent and permits fast screen updates over slow links
- Quad screen mode allows you to see four servers from one screen
- SSL security and passwords prevents unauthorized access

**CrystalView™ Pro
DIGITAL KVM EXTENDER
OVER FIBER OR CAT 5**

- ◆ Extends KVM signals up to 33,000 feet away
- ◆ Uses only two fibers or single Cat 5
- ◆ Supports DVI/VGA, PC, Sun, USB, optional Audio/Serial
- ◆ Single or dual (dual supports second KVM station)
- ◆ Up to 1600x1200 resolution

**CrystalView™ Mini
CAT5 KVM EXTENDER**

- ◆ Extends your KVM station up to 1000' from your computer
- ◆ Supports PC, Sun, or USB, optional Audio/Serial
- ◆ Single or dual (dual supports second KVM station)
- ◆ Up to 1600 x1200 resolution
- ◆ Available as standalone, rack mounted, or high density chassis

**CrystalView™ Rack
CAT5 KVM EXTENDER**

- ◆ Extends the distance from 6 or 12 PC's up to 1000 feet away
- ◆ optional serial/audio
- ◆ Single or dual (dual supports second KVM station)
- ◆ Up to 1600x1200 resolution

USA toll free 800 333 9343
ROSE US 281 933 7673
ROSE Europe +44 (0) 1264 850574
ROSE Asia +65 6324 2322

WWW.ROSE.COM



Rose Electronics • 10707 Stancliff Road • Houston, Texas 77099

FREE Internet Bandwidth!*

eWan is pleased to offer all new clients One Month of Internet Bandwidth, absolutely free! Simply contact one of our representatives for details.

**6 Co-Location
Facilities**

**Multiple Carrier
Redundancy**

**Content Delivery
Network**

99.999% SLA

**Free
Bandwidth!**

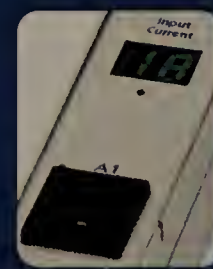
eWAN
Ethernet
Wide Area Networks

949-851-7190

On the web at: www.ewan1.com Or email us at: sales@ewan1.com

1700 E. Garry Ave. • Suite 203 • Santa Ana, CA • 92705 • Fax: 949-852-2644

*Local loop and co-location costs not included. Client is responsible for local loop and co-location costs.

Power Control

**What's Your
'Current' Load?**

**Verify Amps Used per Circuit
with Sentry Input Current Monitor**

- Precisely measure the current, in amps, for each power circuit
- Prevent overloads on existing power circuits
- Reduce costs for additional power circuits
- Overcurrent alarms
- Remote Measurement via IP or RS-232
- Local Measurement via digital display

Sentry Power Tower. Equipment Cabinet Solutions.

Server Technology, Inc.



1040 Sandhill Drive Reno, Nevada 89511 USA
web: www.servertech.com toll free: 1.800.835.1515

Can You Find the Legitimate Email?

Great Financing for your Home Improvement! Attract Women Like a Playboy. W32/Bugbear.A Lose Weight NOW \$860 transfer to your account
Payroll Information! In Order to be Successful, One Must Project an Image of Success! Subscribe Today! FREE! W32/BackOrifice2K Increased
Get a Mercedes for Yourself. Earn Huge \$\$\$ Just for Browsing the Internet! X97Yawn.A FW: Good Stuff Click Here to Win a 42 Inch Plasma
10,000 Waiting for You! HUGE Savings and Discounts FW: Good Jokes! Natural Breast Enlargement W32/Scorpina One Minute Auto Loan
A Sexy Body in Just Days. RE: Request for a Cleaner Credit W32/SQLSlammer.A Limited Time Offer! Join us Today! Chat with singles in your
FW: Work From Home and Earn Thousands \$ Viagra Shipped Overnight. FREE! Don't Wait Another Day 12765 You Are Approved for a New
Forward this Email to Help a Poor Child in Need WM/Showoff.D Register NOW for a Free Vacation WM/Npad.A \$\$\$ Earn your degree in College
Free Credits for Your Pet's Medication! INCREDIBLE Offer!!! Don't Miss JS/Coolsite.A RE: Access your PC Anywhere. I've grown a size big
74397 Tired of Dating? I Want Action Now! W32/CodeRed RE: Important Meeting on Tuesday 564TKD Blow Out Sale! kiko,hi there - \$25
98M/Corner.A FW: Look at These Incredible Pics! Start Earning Dollars Today! Sick of Bad Credit? We Will Help You! Live A_dult WebCam
Why Pay More for a New Car? Grow it Like a Man... \$\$ VBS/Districts.A Russian Women Looking for Husbands in your Area | hair restoration
RE: New to Your Area 239654EE*43 Feel Like You're 18 Again! FREE Trials for Herbal Viagra X97M/Divi WOW! Out of Control! NBA pics C
Become a Web Marketing Specialist in 3 Days. Low Mortgage Made Easy! University Diplomas. No more impotence! New 3Meg DSL Service
Win a Color Laser Printer Win2K/Cluster.B Your Private Gold Mine Invitation | Premium Red Hot Action Lowest Rates Online... below 5% on
Private delivery to your home Urgent AC #1289 RE: wrestling cops W32/ILoveU.A world's smallest digital camera Make some serious cash

We can.

(By the way, you have an important meeting on Tuesday.)



Rid your corporate inbox of harassing spam and viruses. Today. Forever.

See network trouble faster and fix it quicker. With OneTouch™.



OneTouch™ Series II
Network Assistant

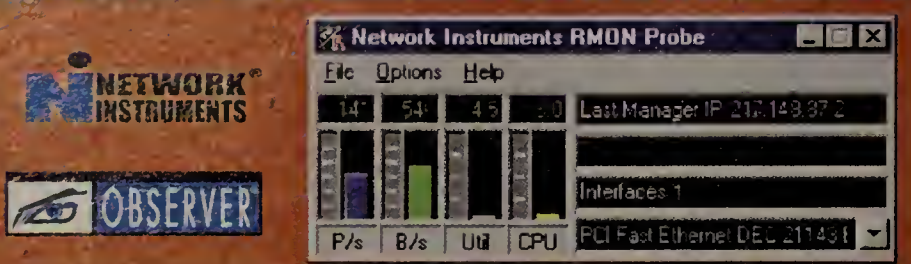
The OneTouch Series II is the perfect tool for troubleshooting switched environments. It identifies problems and shows you solutions – fast. See everything from instant discovery of network devices to locating duplicate IPs. Sources of network utilization, errors and broadcasts. Automatically tests patch cords, NICs and switch ports. Monitors traffic throughput. And a lot more. The bottom line is improved network performance. It increases uptime. Lowers maintenance costs. And because OneTouch is so easy to use, you'll cut training costs, too.

OneTouch is part of a family of network support tools. Find the right tool to fit your needs with the interactive selection guide at www.flukenetworks.com/toolguide.

FLUKE
networks

RMON2 PROBE \$395

Complete, Industry Standard, Software-Based RMON2 and RMON1 Probe for Windows 98/Me/NT/2000/XP



- Low cost, complete RMON monitoring for remote sites or segments.
- Software-only, non-dedicated data collection.
- Pure, full RMON 1 and 2 support. Complete implementation of both RMON 1 and 2 for Ethernet (10/100) and Token Ring (4/16). Full adherence to RFCs 1513, 1757, 2021 and 2074.
- Runs as a service on Windows NT/2000/XP.
- Works with ANY RMON management console or collection facility (Observer®, OpenView®, Concord®, NetScout®, etc.).
- Compatible with Network Instruments' optimized ErrorTrack™ NDIS drivers display true errors-by-station.
- Multiple concurrent network interface monitoring (up to 10).

WHY PAY THOUSANDS MORE FOR THE SAME DATA?

CALL 800-526-7919 FOR INFORMATION, OR SEE OUR WEB SITE AT:

www.networkinstruments.com

© 2001 Network Instruments, LLC - Corporate Headquarters (952) 932-9899 FAX (952) 932-9545
UK and Europe +44 (0) 1959 569880 FAX +44 (0) 1959 569881 info@networkinstruments.com www.networkinstruments.com
Network Instruments and the "N" logo are registered trademarks of Network Instruments, LLC Minneapolis, MN USA

We Buy & Sell
CISCO Juniper
800-861-3797
Overnight Delivery
Fully Warranty
40%-90% off List Price
Free Tech Support
Specials Cisco 2611 \$800
Cisco NM-HDV-1E1-30 NIB \$4500
Overnight Networks, Anaheim, CA 92840
Need it today? Have it tomorrow!
www.overnightnetworks.com

www.cash4cisco.com
We Buy New/Used
CISCO
714-878-2953
Call us today to recover
your assets
*You got the gear,
we got the cash!*

CISCO NORTEL
NEW • REFURB / BUY • SELL
Call Refurb
Nortel Baystack 450-24T Switch Reg. \$695
\$225 Refurb
Cisco WS-C1924C-EN Reg. \$350
\$99 Refurb
Nortel Baystack 310-24T Switch Reg. \$295
\$175 Refurb
Cisco 2501 Reg. \$275
NLE
Fax Equipment List To 801-377-0078
NORTEL NETWORKS
Bay Networks
CISCO SYSTEMS
3Com
888-8LANWAN
Call for Free Quote! (888-852-6926)
Visit Us On the Web At: www.nle.com

FIBER OPTIC SOLUTIONS
• T1/E1 & T3/E3 Modems
• RS-232/422/485 Modems and Multiplexers
• IBM 3270 Coax, AS400 Twinax, and RS6000 Modems and Multiplexers
• LAN - Arcnet/Ethernet/Token Ring
• Video/Audio/Hubs/Repeaters
• ISO-9001
s.i.TECH
Toll Free 866-SITech-1
630-761-3640, Fax 630-761-3644
www.sitech-bitdriver.com or www.sitechfiber.com

Attention Resellers!

SECUREMATICS™
The Right decision for Security Products

Best Source for SONICWALL Security Products!



- Inventory on hand
- Aggressive prices
- Added margins with training
- Pre sales-Post sales support

Securematics is a SonicWALL Authorized Distributor And Authorized Training Partner.

To sign up for the Medallion Partner Program, please contact us.

Call - 888-746-6700 sales@securematics.com www.securematics.com

Save 40-70% on Network Equipment
Refurbished Routers, Switches,
Access Servers and Modules

Trust .Value //
Quality Parts.Great Prices

Call today for
10% off 1 item (Up to \$500)*
*New customers only.

Trust the Experts
Conticomp
COMPUTERS Since 1984

www.conticomp.com
Call us: (310) 416-1200

Training Directory

Contact these companies today to help you with your training needs!

Capella University
(888) CAP-ELLA
www.capella.edu
Accredited online university offering IT degrees

Transcender
(615) 726-8779
www.transcender.com
Award-winning practice exams for IT certification

Learnkey, Inc.
(800) 865-0165
www.learnkey.com
Self-paced online CD network certification developer bus/apps

CBT Nuggets
(888) 507-6283 & (541) 284-5522
www.cbtnuggets.com
Affordable training videos on CD.
MCSE, MCDBA, MCSA, CCNA, Citrix, Linux, A+, Net+

IPexpert, Inc.
(866) 225-8064
www.ipexpert.net
CCIE (R&S, SEC, and C&S), CCSP,
CCNP, CCNA, IP TELEPHONY

To Place Your Listing Here
Call Enku Gubaie at (800) 622-1108

NetworkWorld NetSmart Learning Partner

Consulting Engineer sought by Maloy Research, Inc., to determine software architecture and software frameworks to be applied in the development of Java based mobile communications devices using WebSphere and Jboss Application server and Model View Controller pattern. Must work with micro-electronics and embedded controllers to custom design solutions for clients. Must evaluate reference hardware platforms, determine custom software application requirements of clients and coordinate development effort with software development team. Must have a Bachelors degree majoring in Power Electronics engineering or computer science engineering. 8:00 AM to 5:00 PM at \$60,000/year. Send resume to HR Department, Maloy Research, Inc., P.O. Box 810, Uniontown, OH 44685.

Oracle Clinical Database Administrator

Application and DBA support for various applications in distributed environment. Oracle DBA support on UNIX, Windows NT and VAX/VMS. Production support, backup/recovery strategies, performance tuning and developmental support. Design and implement local and global standards. Manage complex patient database systems running on Oracle Clinical, and implement using Oracle's symmetric replication technology for global deployment. Req. 6 yrs prev exp, 2 of which must be in Oracle Clinical. Send resume to BLC Consulting, Human Resources, 26 Jefferson Court, Wethersfield, CT 06109.

System Architect, R&D - sought by NJ-based Int'l Logistics & Freight F/wdg Co. for job loc. in Naugatuck, CT. Req'd to resrch, dsgn, dvlp & test oper. sys specific to USCO Lgsts. & in compl. w/corp IT reqmts. Must have Master's Deg (or equiv) in IT or Comp. Sc or any Engg field & 2 yrs exp in job off'd or 2 yrs exp as Sys Mgr or Sys. Anlyst. Must be exp'd in Java (J2EE, Servlets, JavaBeans, Java Design Patterns) & XML. Ability to work in global environ. Supvse 3. Send resumes to: Human Resources-MB, USCO Logistics, Inc. 22 Spencer St., Naugatuck, CT 06770.

Saisha Tech & Circuits International, a certified minority-owned business enterprise, is looking for Sales Engineer with direct account responsibility, selling custom manufactured electronic components. Must have BS with exp. in tariff calculations. Please apply at team@stacilc.com

CDI, one of the largest staffing companies, has multiple IT/Engineer positions. We require BS/MS or equivalent with exp. in the related fields. Good reference also required. We offer competitive salary with full benefit package. Please visit www.cdicorp.com to find positions.

Software Engineers needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 1 yr. working w/ Visual Studio.NET & Powerbuilder, and 2 yrs. working w/ SQL Server (exp. can be combined). Duties include: Design, develop, maintain computer app. & databases; implement software systems; Troubleshoot & debug systems. Work w/ SQL Server, Visual Studio.NET, Coldfusion, & Powerbuilder. Send res., ref. & sal. req. to DMC West Inc., 414 T St SE, Tumwater, WA 98501.

IT PROFESSIONALS

Senior Consultant

Responsible for integration testing for Enabler and Ensemble in the areas of Product Catalog/ Price Plan, Rater/AGF/MPS, and Billing. Plan and implement the rollout of an order entry and provisioning system for the Indirect Sales Channel. Lead teams to ensure successful systems implementation utilizing ASP, HTML, JAVA Script, Visual Basic Script, and Oracle DB. Develop test plans and test scripts and lead teams for efficient testing and defect resolution. Responsible for gathering system requirements, applying business requirements to system requirements and identifying process gaps in the in production support process. Identify key business processes to be impacted by the new system in the area of Billing, Customer Care, Sales, Price Plans, Collections and design post-launch Production Support processes. Produce quality deliverables to supplement the reporting needs of the project. Utilizing SQL queries and Excel Macros produce necessary reports in an effective process minimizing manual intervention. Provide required training for post implementation support. Manage defect tracking and reporting using Mercury Interactive Test Director tool. The wage offered is \$63,390. The work schedule is Monday to Friday 9:00am to 5:00pm. The Minimum Requirements are as follows: Bachelor's degree or equivalent in Computer Science, Engineering (any type), Math, Information Systems, or Business Administration + 3 years exp. in the job offered or 3 years exp. as a Systems Analyst or Consultant. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credential evaluation service. In addition, must have at least 6 months of experience utilizing: ASP, SQL, HTML, Java Script, Visual Basic Script, Oracle DB, and Enabler and Mercury Interactive Test Director tool and at least 2 years of experience utilizing Ensemble.

Please send your resume, referencing Job Order Number WEB366859 to:
Team PA Careerlink
B.E.C.S.
444 N.3rd St., 3rd Floor
Philadelphia, PA 19123

Software Engineer - Architect, plan & configure DSS tools (Siebel Analytics, Microstrategy & Informatica). Should be able to gather business requirements from clients. Responsible for architecting, installing, configuring and testing Siebel Analytics & informatica in Oracle environment. Should have hands-on experience working with Administration tool, designer and web catalogues. 2 years experience on the job with a Master's Degree in Science/Math/Computer/Engg/Management. Location: Deerfield Beach Shiva Systems 5749 Camino Del Sol Unit 206 Boca Raton FL 33433

Senior Web Developer: Design and implement versions of medical management automation software. Develop desktop versions using VB and Access. Develop Web and PDA versions using J2EE (EJB/JSP). Requires: B.S. in Electrical Engineering. Must have hands on knowledge of J2EE (EJB/JSP), MS SQL Server, Access and VB. 40hrs/wk (8:00 A.M. to 5:00 P.M.); \$58,000.00/yr. Send two resumes/responses to: Case Number 200203053, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114

DATA. WIRELESS. NETWORK.
YES, YOU'RE IN THE
RIGHT NEIGHBORHOOD.
WE LIVE WHERE YOU LIVE.™



What can a company like State Farm® possibly offer in the way of I.T.? Just one of the nation's largest computer networks. The drive of a Fortune 25 company. And a wealth of I.T. opportunities. How do you like the neighborhood so far?

LIKE A GOOD NEIGHBOR



STATE FARM IS THERE.®

For more information, visit statefarm.com® or email jobopp@corp.statefarm.com.

State Farm • Home Offices: Bloomington, Illinois • An Equal Opportunity Employer

The MathWorks

The MathWorks leads the market in developing and delivering high performance interactive software products such as MATLAB® to the engineering and scientific communities. We're increasing our lead by hiring the best people for every job in the organization. We have the following positions available at our offices in Natick, MA:

Embedded Tools Developer

Develop the core of the company's automatic C code generation products for embedded real-time systems for the Real-Time Workshop software suite.

DSP Simulink Blockset Engineer

Engage in DSP algorithm development for audio and telephony application areas. Write floating-point and fixed-point algorithms in C++ and MATLAB to be implemented to support both simulation and embedded code generation for programmable and custom hardware targets.

GUI Component Engineer

Responsible for component architecture, user interface design, JAVA component construction, user visible API definition, and default properties definition of the Company's Graphical User Interface components.

DSP Software Engineer

Research, propose, plan, and implement graphical user interfaces (GUI) for spectral analysis, filter analysis and design, and other general digital signal processing (DSP) operations.

Product Developer

Responsible for the development of code generation products for automatic control systems. Will be primarily responsible for Data Management, Graphical User Interfaces (GUI) and new features.

The aforementioned positions are available at all levels and require a minimum of a B.S., M.S., or Ph.D. and 0-8 years' experience.

Additional Opportunities in the Following Areas:

- Senior Installer Engineer
- Senior Manager, Comp, Benefits, & HRIS
- GUI Developer
- MATLAB- Senior Software Engineer
- Siebel Analyst
- Business Intelligence Analyst

For fastest consideration interested candidates should reply via our website: <http://www.mathworks.com/jobs>

Attn: Human Resources - Job Code: CW1003, The MathWorks, Three Apple Hill Drive, Natick, MA 01760-2098.

We are an equal opportunity employer.

www.mathworks.com

Developers of MATLAB

IT PROFESSIONALS

Network Product Engineer
sResponsible for assessing existing data networking and telecommunication infrastructure, utilizing extensive experience in Voice and Data Communication architectures utilizing Cisco and other networking equipment vendors. Responsible for defining a forward-looking data networking and telecommunication strategy to encompass voice and data communications, utilizing experience with WAN (Wide Area Network) strategy development. Apply CCNA (Cisco Certified Network Associate) certification to install, configure, develop and operate Voice and Data networking technologies such as LAN (Local Area Network) Switching, WAN Routing, Circuit Provisioning, QOS, IP SoftSwitches, Security, Wireless, ATM Frame Relay and MPLS (Multi Protocol Label Switching), Voice Over IP, and IP-VPN (Virtual Private Network). Assist with procurement and sourcing of data networking and telecommunication services by interfacing with equipment vendors and carriers utilizing experience in network procurement and dealing with both equipment providers as well as network service providers from a sourcing perspective. Develop training materials and detailed documentation for knowledge transfer to appropriate operations personnel. The wage offered is \$84,660/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree in Comp Science, Electrical Engineering, Telecommunications, Mathematics, Information Technology, Business Administration + 3 years experience in the job offered or 3 years experience as a Network Product Engineer. Related experience must also include Certification of CCNA (Cisco Certified Network Associate), Switching Fundamentals, TCP/IP, Routing Basics, WAN Technologies, Wireless Technology, Operating and Configuring Cisco IOS Devices

Please send your resume, referencing Job Order Number WEB367014 to the: Team PA Careerlink B.E.C.S. 444 N.3rd St., 3rd Floor Philadelphia, PA 19123

Exec Search, Inc. a technology consulting firm in Wisconsin has multiple IT positions around the country w/ exp in one or more (depending on need) of the following skills: WebMethods Integration Server, WebMethods Trading Networks, WebMethods Enterprise Server, IBM MQSeries, IBM Assembler, IBM WebSphere, Mainframes, CICS, DB2, COBOL, Unix, Sun Solaris, Windows, C/C++, Visual C++, VB, VB NET, SAP, IIS, Visual Source Safe, Power Builder, Designer 2000, Developer 2000, Oracle, Oracle Application, SQL Server, MS Access, SOL, SOL Plus, PL/SOL, Data warehousing Tools, HTML, DHTML, XML, TCP/IP, Perl, JSP, Weblogic, Java, Java Script, VB Script, ASP, ASP.NET, Clarify, Documentum, CoreDossierX, Rational Rose, Testing tools and QA methodologies. Some positions req. Bachelor's degree others Master's in Computer Science or in a related field, or its equivalent as well as relevant IT exp. Relocation may be necessary for most jobs. Send resume to Exec Search, Inc., C/O ISS, 1300 Bent Creek Blvd, Ste. 200, Mechanicsburg, PA 17050.

COMPUTER PROFESSIONALS

- Opportunities for:
- PROCESS CAPABILITY ANALYST
 - OC ANALYST
 - WEB ARCHITECTS/DEVELOPERS
 - SYSTEMS ANALYSTS
 - WEB GRAPHIC DESIGNERS
 - NETWORK ENGINEERS
 - PROGRAMMER/ANALYSTS
 - SOFTWARE ENGINEERS

- SKILLS:
- COLD FUSION • SPECTRA
 - ORACLE • VISUAL BASIC
 - VISUAL C++ • SIEBEL • ASP
 - COM, DCOM • JSP • HTML
 - JAVA, JAVA BEAN • EJB JAVA
 - SERVLETS • WEBSERVICE
 - IBM MQ SERIES • XML, UML
 - MTS • CLARIFY • PERL
 - OBJECTPERL • SPYPERL
 - SMALLTALK • PL/SQL
 - VISUAL AGE • COBOL, SPL, UNIX

Visit our website @ www.computerhorizons.com

Attractive salaries and benefits. Please forward your resume to: H.R. Mgr., Computer Horizons Corp., 49 Old Bloomfield Avenue, Mountain Lakes, New Jersey 07046-1495. Call 973-299-4000. E-mail: jobs@computerhorizons.com. An Equal Opportunity Employer M/F.

Chief Operating Officer. U.S. subsidiary of Israeli desktop marketing and technology solutions company seeks COO to direct multinational software development operations in Israel and the United States. Responsibilities include: direct strategic planning and the development and implementation of marketing strategies, including the development and launch of new products and services; direct quality assurance management, R&D, inventory control, human resources and customer distribution operations. Direct operational managers in Israel and the U.S.; report directly to Israeli Board. Must have a Bachelor's degree or foreign equiv. and at least 2.5 years of experience as an Account Manager in the desktop marketing industry. Frequent travel to Israel required. Email application to: Fiona Walsh, HR Manager, Fiona@cydoor.com. Specify "Application" in subject line of email. Cydoor Technologies, Inc., 135 West 29th St., Suite 302, NYC, NY10001

Programmer Analyst. Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Under direct supervision, analyze, plan, develop, test and document computer programs including network communication programs. Evaluate user requests and software program requirements for new and modified programs. Write specifications, code, test and debug computer programs. Use of C, C++, Java, SQL, DB2, Oracle, JSP, HTML, HTTP, COM, SOL, XML and Windows NT. Reqs. Bachelor or equivalent in Computer Science, Computer Engineering, Physics, Mathematics or related degree. Plus 1 year in the job offered or 1 year in a related occupation, including Software Technical Consultant or Systems Analyst. Will accept 3 years of college education and 3 years of experience in lieu of required education and experience. \$60,000/year, 40hrs/wk, 8AM-5PM. Respond by resume to WORKFORCE DEVELOPMENT PROGRAMS, PO Box 46547, Denver, CO 80202, and refer to Job Order No. CO5058861.

Senior Software Engineer: Work in the company's mixed signal test language integrated development environment test systems software department. Design and build production software infrastructure for mixed signal test systems. Analyze customer requirements and devise solutions to increase system productivity and units per hour tested. Extend language processor for the system. Enhance existing system and create new debugging tools and display software for mixed signal test language development environment. Work extensively with C/C++, LEX and YACC on Unix. Will use experience in system software development dealing with system hardware. Requirements include a Bachelor's degree or equivalent in Computer Science, an Engineering discipline or closely related field and five years of work experience in the job offered or related field of software development using C/C++ on UNIX platform. Applicants must have unrestricted authorization to work in the United States. Salary \$87,991/year. 40 hours/wk. Respond with two copies of resume to Case #260203202, Labor Exchange Office 19 Staniford St., 1st Fl., Boston, MA 02114

Sr SAP Basis Consultant (Project Manager)/Co headquartered in Philadelphia/Will work at client sites in PA and throughout the US: Works w/DBA & Basis teams on installing and supporting activities of SAP on OS/390 DB2 platform. Responsible for BASIS Administration of SAP R/3 Implementation, SAP Security, performance monitoring & tuning, SAP Database administration, programming in ABAP/4, applying OSS notes, profile generators, etc. Supports & trouble shoots w/SAP on OS/390 DB2 platform. Travels to client sites throughout US on long & short term basis. Works nights, weekends & holidays as required, especially for on call support. Supervises & manages SAP projects & teams of SAP consultants. Trains other SAP consultants to perform above duties. 40+hrs per wk; c. 10hrs OT, varies; 9am-5pm, sometimes until 7pm/also weekends for on call support; \$88/hr. Masters or equivalent education or experience and 2 yrs exp as Sr SAP Basis Consultant (Project Mgr) or 2 yrs as Software Engineer/SAP Basis Administrator. Submit resume to Career Link, Philadelphia Downtown Job Center, 930 Washington Ave, Phila, PA 19147-3898. Refer to Job Order # WEB361879.

Infobahn Technologies has immediate full time openings (2 positions) for Programmer/Analyst to design, develop & implement Oracle Technical Applications using Oracle Apps (11i, 11.0.2, 10.7, 11.0.3, 8.0.5) & Modules (AP, AR, GL, OM, OE, INV, iProcurement, Workflow Builder, Purchasing, Contracts & Services, AOL) & exp with tools such as Discoverer 3.1, iStore, Forms 4.5.6i, Reports 2.5, 6i, PL/SQL & Datamodelling exp. Req BS in Comp. Sci. Engg/Rel field with 2 yrs exp. Send resumes to: Infobahn Technologies, (HR) 288 Walnut St. #410 Newton, MA 02460.

PROGRAMMER ANALYSTS for Lincoln, NE office. Develop software applications using VB, Oracle, XML, UML, Interwoven, Coolgen, MO-series, MTS, SOL server. Bachelors Degree or equivalent reqrd in Computers, Engineering or related field + 2yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Infocross, Inc. 1823 Hartley St, Lincoln, NE 68521

Computers-Software Engineers needed. Candidates must possess BS or equiv. and/or rel. work exp. Duties include: Extract data from disparate POS systems; Design database & upload components to analyze the extracted data; Work with Visual Basic, ASP, Javascript & Transact SQL. Knowledge of hospitality industries & ability to work with multiple databases preferred. Fwd. resume & ref. to Managed Data Group, LLC, Attn: HR, 1843 Spring Garden St., Greensboro, NC 27403.

KMA
Kama Consulting Inc.
TOP \$\$\$'s, W2 or 1099
We are a fast growing Consulting company based in North Carolina. Excellent opportunities for Programmers, Systems Analysts, DBAs. Sun Solaris System Admins, Mercatur, Websphere, ASP, .NET, ORACLE, PROGRESS, C++, TCP/IP, Delphi/VB, Windows NT
Send your resume to Rod McFadden Kama Consulting Fax: 704-896-9660 Email: rod@kamac.com

Software Developer Siemens ITS Atlanta office seeks a Software Developer to design and develop distributed real-time system software for the transportation engineering industry to support dynamic real time traffic data for advanced traffic management systems. Req. a Bachelor's degree in computer science or closely related field and proficiency in using C++, Java, SOL and distributed systems architectures, and basic knowledge of SNMP and NTCIP. Fax resume to Walter Townsend at 770-814-5180. For more information, visit www.itssiemens.com. Job Code: TN-001.

Sr. Programmer/Analyst, Washington, DC. To design, develop, enhance, implement, debug and maintain IVR/AVR applications in voice/data integration and network infrastructure based on VoiceXML including Nuance/Speechworks and TTS; Java applications server; MySQL, Oracle, Dell PowerVault Series, Linux and Windows; Dialogic, NMS and E1/ISDN; and Gateways-H323 and SIP. Req. M.S. in Computer Networks & Communications & 2 yrs exp. M-F, 40hrs/wk. Send resume to S. Arsenyev, EastBanc Technologies, LLC, Ref. #99V3307 M Street, N.W., Suite 200, Washington, DC 20007.

You can
find a
better
JOB
with one
hand tied
behind
your
back.

Just point your

mouse to the

world's best

IT careers site,

powered by

CareerJournal.com

Find out more at:

www.itcareers.com

or call

(800) 762-2977

Programmer Analyst
Responsible for developing, applying and maintaining quality standards for software applications. Develop and execute Automated Software test plans, extensively utilizing Mercury Interactive WinRunner, LoadRunner, TestDirector. Analyze and write test standards and procedures. Maintain documentation of test results. Bachelors Degree in Computer Science or relevant field with 4 Years of work experience in related occupation. 40 Hrs./Week., \$70,000/ annum. Must be willing to relocate to various unanticipated work locations throughout the USA every 4 to 10 months, employer paid. Must have proof of legal authority to work in the United States. Send your resumes to the Iowa Workforce Center, 215 Watson Powell Jr. Way, #100, Des Moines, Iowa 50309-1727. Please refer to Job Order IA1101805. Employer paid advertisement.

Database Programmer: Design, develop, and maintain a proprietary client-server database application that provides centralized control of bug, knowledge, customer support, and sales databases using Visual Basic, MTS, and SQL Server. Design, develop, and maintain e-commerce site for U.S., European, and Japanese market using Visual Basic, SQL stored procedures, HTML, and JavaScript. Design, setup, and administer SQL Server database and Internet Information Server. 40 HPW, M-F. Requires bachelors in computer science or engineering plus 1 yr. exp. as database programmer or application developer/related position. \$51,563/yr. Resume to Jorge Miranda, VP Product Support & Maintenance, ACD Systems of America, Inc., 1150 NW 72 Ave., Miami, FL 33126, (305) 596-5644.

Software Engineer. Three openings. Develop software following RUP methodology; contribute to ongoing design efforts with recommendations to the product development on area of expertise; work with other team members and Project Leads to ensure smooth integration and product releases. Must have Bachelor's degree in Computer Science or related field, one year experience, and experience must include working with multiple database platforms, Rational Rose, Java and related technologies including J2EE, JNDI, JMS, JAAS, and utilizing JUnit with iterative development. Must have implementation knowledge of multiple application servers such as WebLogic, WebSphere or Tomcat. Send resume w/ cover letter to Praxis Technology Group, LLC, Attn: Darcy Bedford, 1500 NW 118th St., Des Moines, IA 50325.

COMPUTER
Technosoft Corporation has multiple openings for Programmer/Analysts, Software Engineers, Project Leads/Managers with skills in Java, Per, Siebel, Oracle/Informix DBA, GUI, Java C++, CRM Applications, ERP & Dataware-housing. Send resume to: 1250 Oakmead Parkway, Suite 210, Sunnyvale, CA 94085 or email to: jobs@technosoft-corp.com

Information Technology Support Specialist sought by real estate investment trust company in Englewood, CO to work in Englewood and other unanticipated job sites in the U.S. to resolve problems with proprietary software applications, LAN, WAN and hardware. Contact appropriate outside vendor to resolve problems as needed. Consult with network infrastructure team and local phone carriers to troubleshoot line and network problems. Design LAN, configure LAN and oversee installation at remote sites. Expand network including laying cable, redesigning networks and implementing connectivity. Complete reconfiguration and system updates of hardware and software. Build and configure servers. Utilize Citrix network system and Telnet in resolving computer problems. Setup and maintain telecommunications system. Provide desktop support for computer users utilizing remote assistance program as needed. Requires bachelor's in Information Systems Management; working knowledge of remote assistance programs, Telnet, WAN and LAN protocols, network design and server configuration. (Working knowledge may be gained in an academic or work setting.)M-F; 8am-5pm; \$41,850/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to JON CO5059647.

Software Engineer
Responsible for Unix System Administration, Planning, Installation, Configuration, and Integration of Various UNIX platforms. Conceptualize Design, Construct, Test, Implement and Optimize infrastructure Systems. Develop Architects Client/Server solutions and environments. Create application program interfaces and Network designs. Establish and Maintain Security, Integrity and Business continuity controls and documents, provide 24x7 on-call support. Bachelors Degree in Computer Science or relevant field with 5 Years of work experience in related occupation. 40 Hrs./Week., \$75,000/ annum. Must be willing to relocate to various unanticipated work locations throughout the USA every 4 to 10 months, employer paid. Must have proof of legal authority to work in the United States. Send your resumes to the Iowa Workforce Center, 215 Watson Powell Jr. Way, #100, Des Moines, Iowa 50309-1727. Please refer to Job Order IA1101787. Employer paid advertisement.

NetSoft has openings for IT professionals. Skills in COBOL II, CICS, MVS, JCL, VSAM & DB2, HTML, Java, PWB, IIS, JDBC, ASP, JavaScript, XML, C/C++, Oracle preferred. Applicants must have BS/MS or equivalent. Travel maybe required. Apply at jobs@nstc.net. EOE

Pictures Inc. (Anivision America) is looking for System/Programmer Analyst to design animation using XP, ME, 9X, UNIX, Novell Network. Applicant must have Bachelor with exp. in Oracle, Novell. We offer competitive wage, standard benefits. Please contact: joanne@sunwoo.com

Software Engineer
Provide technical support to existing systems. In addition, design, develop, code, unit test and debug Annuities/Insurance based financial systems and applications utilizing Progress 4GL (GUI and CHUI), ADM and appserver technology. Must have Bachelors Degree or foreign equiv. in CS or related field & 2 yrs. exp. or 2 yrs. exp. in a related position w/ability to use: VPAS and Progress. 40.0 hrs./wk 9:00 AM - 6:00 PM Send cover letter and resume to: McCamish Systems, LLC, 6425 Powers Ferry Road, 3rd Floor, Atlanta, GA 30339, Attn: HR Manager

IT PROFESSIONALS:

Senior Consultant
Evaluate & analyze business process requirements, define systems strategy, develop systems requirements, design, prototype & implement business solutions, & define support procedures. Perform detailed analysis & effective diagnosis, and propose solutions to client business process & technology issues with Cross Application Time Sheet (CA-TS) configuration (with integration to PS, PM and FI/CO) & implementing Time Evaluation including the development of user enhancements for Quota generation. Configure & implement Work Schedules, Absences & Attendances, and automatic Quota Accruals utilizing SAP HR. Configure schema and personnel calculation rules for Time Evaluation for Union and Non-Union employees to calculate work and non-work time, overtime, holiday and convert the hours to time type and time wage types.

WAGE: \$98,850/year
Hours worked: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree in Computer Science, Engineering (any type), Math, Business Administration or Information Systems + 5 years exp. in the job offered or 5 years exp. as a Senior Consultant, SAP HR Consultant, Consultant, System Analyst, Database Analyst. Related experience must include SAP HR and at least 6 months in Cross Application Time Sheet (CA-TS) configuration (with integration to PS, PM and FI/CO).

Please send your resume, referencing Job Order Number WEB366876 to the:
Team PA Careerlink
B.E.C.S.
444 N.3rd St., 3rd Floor
Philadelphia, PA 19123

Programmer/Analyst, Delphi to program, analyze, test, troubleshoot, and develop Delphi software as a front end for use in multiple RDBM (such as Foxpro, Oracle, Interbase, and Sybase) legacy informational systems installed in a distributed client server environment including implementation in an intra/internet environment. May use tools such as MIDAS, SOAP, COM/DCOM, Object Pascal, ASP, ADO, XML, Web Logic Server or Web Services, T-SQL, DLL, TOAD, Quick Reports, IIS, Swing or JSP as required in performance of duties. Requires Bachelor's Degree in Computer Science, Mathematics, or any Engineering or Physical Science field and one year direct experience. Work location: Various unanticipated client sites. Send resumes only, no calls, to: Perry Senapathy, Genome International Corp., 583 D'Onofrio Dr., Madison, WI 53719

Systems Analysts to work as consultants at client sites in the U.S. and abroad. Implmt, customize & upgrade Oracle ERP s/ware pkgs. Reqs: BA/BS in Comp Sci, Eng'g, Bus, Logistics, HR, or related field + 2 yrs exp w/Oracle Apps or DB's. Send resumes, refs, and salary req's to Attn: HR, IT Convergence, 150 E. Gilman St., Suite B2200, Madison, WI 53703 or resume@itconvergence.com.

Computer/Info Systems



INFORMATION TECHNOLOGY

Director, Financial Management System

Responsible for planning for and leading the implementation of a new University Financial system, including components related to research administration and compliance. Past experience in a university or similar highly decentralized environment is desirable, with career emphasis on planning, design and implementation of large, complex enterprise systems. Excellent written and oral communications skills required. Bachelors degree in computer science, business, accounting or related field required, MBA preferred. Minimum 10 years of experience in a professional information technology and financial system environment required. For a complete description, go to www.it.northwestern.edu.

Director, Technology Support Services

Responsible for recruiting, enlisting, training, evaluating and managing the professional staff. Defines project scopes. Develops and maintains unit budget. Measures satisfaction with the services offered. Consults with University divisions on appropriate new services. Bachelors degree required. Minimum 10 years of experience both as an end-user and administrator in two or more areas of computing and networking support. Excellent oral and written communication skills.

Project Manager, Financial Management System

Assist in managing university wide financial management system replacement. Requires experience managing projects and staff with technical hands on involvement. Background in financial systems, enterprise systems, relational database, and web-based self-service preferred. Excellent written and oral communications skills required. BS in Computer science or related field required. Minimum 5 years of experience in a professional information technology and financial system environment.

Web Developer

Experienced web developer with strong analytical and communications skills, PeopleTools, HTML, JAVA/CGI Scripting, with web to database connectivity required (Oracle preferred). Familiarity with Dreamweaver, Photoshop, and IIS desired. Bachelor's degree in computer science or related field required. Minimum 3 years in a professional information technology environment.

Service Analyst

Customer service rep for voice/data plus products. Consult w/customers, coordinate work orders with field ops. Basic programming knowledge of Nortel SL-100 switch and Octel voice mail system preferred. Microsoft Windows and Microsoft Office experience. Excellent oral and written communication skills. Excellent customer service skills. Degree preferred, telecom experience preferred.

We offer a competitive salary and excellent benefits. Send Resumes to:

NUIT JOBS

Northwestern University, 1603 Orrington, Suite 900, Evanston, IL 60201.

Email: nuit-jobs@northwestern.edu Fax: (847) 467-6500

Visit our Web site at: www.northwestern.edu

Northwestern University is an equal opportunity, affirmative action employer. Members of historically underrepresented groups are strongly encouraged to apply.

Software Engineers reqd by S/ware Dev. & Conslt Co. Duties incl S/ware Sysms dsgn, Object Oriented Analysis & Dsgn, using skill sets incl Java 2 Enterprise Edition Technologies XML/XSLT/DTD/JAXB/JDOM API's, Web applic dvlpmnt using Java, Weblogic or iPlanet, Rational Rose, Application Server Oracle, Http, Http Unit, Unix, Ant, JUnit, OC4J, or SQL d/base server data prgm using SQL, Store Procedures & functions Data modeling using MS VISIO or Erwin, IIS, Apache Webserver admin & maintenance. Application load balancing & configuration. Job loc: Chicago, IL & various unanticipated client sites in US, as assigned. Req: Masters in either Math, or Sci, or Comp. Sci. or Engg, (any displ), (Will accept an equivalency based on 4 yr undergraduate deg followed by 5 yrs of progressive exp in relevant field). 40 hrs/wk, 9a-5p, M-F. Apply to CEO, Edgesys, Inc., 555 West Madison St., Ste 1-2311, Chicago, IL 60661.

SOFTWARE ENGINEER, APPLICATIONS wanted by wireless equipment sales & services co. in Houston, TX. Must have Master's in Computer Science or MIS, plus exp. Respond by resume only to: Mr. N. Maaz, A/K - #10, CellMart Wireless, Inc., 7447 Harwin, Ste. 107, Houston, TX 77036.

Sr. SW Engr.- Develop, integrate, maintain & test complex features & services over communications protocols including, but not limited to: Sigtran, SS7/CCS7 & ISDN. Participate in design & code reviews of new software & modifications to existing software. Analyze & document computerized telecommunication system software requirements, functional specifications, architectural specifications, & design specifications. Must have M.S. in Comp. Sci., Comp. Eng'g, Electrical Eng'g, Electronics Eng'g or equiv., + 2 yrs. exp. in job offered or 2 yrs. exp. w/telecom SW development; must have proficiency in C programming, as well as knowledge of telecommunications protocols. Exp. may be gained before or after M.S. In the alternative, employer will accept Bachelor's degree & exp. equiv. to a Master's degree. 40 hrs/wk; Sal: \$92,833/yr. Send 2 copies of resume to: Case #200202760, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

TransZap, Inc. seeks applicants for the position of Java Developer in Denver, CO to engage in full life-cycle software development of web-based, multi-tier software applications for the oil and gas industry. Requirements include bachelors in computer science or related field; experience designing and developing software applications using Oracle RDBMS, Unix, Linux, Sun Solaris, J2EE, UML, EDI and OOT. Respond by resume to TransZap, 1580 Lincoln St., Suite 930, Denver, CO 80203.

Boehringer Ingelheim Pharmaceuticals, Inc. has immediate openings in its Ridgefield, Connecticut facility for the position of Senior Software Engineer.

Develops and implements systems using a variety of technical tools, identifies problems or opportunities to increase effectiveness and productivity and reduces operational costs through optimal use of information systems.

Must possess a Master's degree or equivalent in Business Administration or a related field and three years of work experience in an IT field. In the alternative, a Bachelor's degree in Computer Science, Electrical Engineering or a related technical field and at least five years of relevant business experience in marketing and operations would also be acceptable. Experience to include college coursework/project or work experience with: Documentum, WDK, DFC, Web PublisherDesktop, Java, EJB, Servlets, JSP, Web Logic, Oracle, VB, COM/DCOM, IIS, XML, HTML/DHTML, and JavaScript; and developing client/server and web applications.

Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC0503 or it will be rejected.

Forward resume to BI Staffing Center, PO Box 534, Waltham, MA 02454 EOE.



Sales Offices

Carol Lasker, Associate Publisher/Vice President
Jane Weissman, Sales Operations Coordinator
Internet: clasker, jweissman@nww.com
(508) 460-3333/FAX: (508) 460-1237

New York/New Jersey

Tom Davis, Associate Publisher, Eastern Region
Elisa Delia Rocco, Regional Sales Manager
Agata Joseph, Sales Associate
Internet: tdavis, elisas, ejoseph@nww.com
(201) 634-2300/FAX: (201) 634-9286

Northeast

Dorina Pomponi, Regional Sales Manager
Callie Mangano, Sales Assistant
Internet: dpomponi, cmengano@nww.com
(508) 460-3333/FAX: (508) 460-1237

Mid-Atlantic

Jacqui DiBianca, Regional Sales Manager
Marta Hagan, Sales Assistant
Internet: jdibian, mhagan@nww.com
(610) 971-1530/FAX: (610) 975-0837

Midwest/Central

Eric Danetz, Regional Sales Manager
Agata Joseph, Sales Associate
Internet: edanetz, ajoseph@nww.com
(201) 634-2314/FAX: (201) 712-9766

Northern California/Northwest

Sandra Kupiec, Associate Publisher, Western Region
Karen Wilde, Regional Sales Manager
Miles Dennison, Regional Sales Manager
Courtney Coughlin, Regional Sales Manager
Maricar Lagura, Office Manager/Sales Assistant
Teri Lowe, Sales Assistant
Internet: skupiec, kwilde, mdennison, ccoughlin, mlagura, tlowe@nww.com
(510) 768-2800/FAX: (510) 768-2801

Southwest/Rockies

Becky Bogart Rendell, Regional Sales Manager
Angela Norton, Sales Assistant
Internet: brandell, anorton@nww.com
(949) 250-3006/FAX: (949) 833-2857

Southeast

Don Seey, Regional Sales Manager
Callie Mangano, Sales Assistant
Internet: dseey, cmengano@nww.com
(404) 845-2886/FAX: (404) 250-1646

Customer Access Group

Tom Davis, Assoc. Publisher Eastern Region/General Manager, Customer Access Group
Shaun Budka, Director, Customer Access Group
Kate Zinn, Sales Manager, Eastern Region
Caitlin Horgan, Sales Assistant
Internet: tdavis, sbudka, kzinn, chorgan@nww.com
(508) 460-3333/FAX: (508) 460-1237

Fusion

Alonna Doucette, Vice President Online Development
James Kalbach, Director, Online Services
Stephanie Gutierrez, Online Account Manager
Debbie Lovell, Online Account Manager
Kristin Douglas, Online Operations Manager
Lisa Thompson, Online Ad Traffic Coordinator
Internet: adoucette, jkalbach, sgutierrez, dlovell, kdouglas, lthompson@nww.com
(610) 341-6025/FAX: (610) 971-0557

MARKETPLACE

Response Card Decks/MarketPlace

Jayson Cooper, Director of Marketplace Advertising
Enku Gubaie, Senior Account Manager
Caitlin Horgan, Account Manager
Chris Gibney, Sales Operations Coordinator
Internet: jcooper, egubaie, chorgan, cgibney@nww.com
(508) 460-3333/FAX: (508) 460-1192

IT CAREERS

Vice President, Nancy Percival, Midwest/West Regional Manager, Laura Wilkinson, Midwest/West Account Executive, Mark Dawson, Eastern Regional Manager, Jay Savell, Eastern Account Executive, Andrew Haney, Sales/Marketing Associate, Joanna Schumann
(800) 762-2977/FAX: (508) 875-6310

Network World, Inc.

118 Turnpike Road, Southborough, MA 01772
Phone: (508) 460-3333

TO SEND E-MAIL TO NWW STAFF

firstname_lastname@nww.com

Evilee Thibeault, CEO/Publisher
John Gallant, President/Editorial Director
Eleni Brisbois, Administrative Planning Manager

FINANCE

Mary Fanning, Vice President Finance
Paul Mercer, Finance Manager
Betty Amaro-White, Event Finance Manager

HUMAN RESOURCES

Elizabeth Price, Director of Human Resources
Eric Cormier, Human Resources Representative

MARKETING

TerryAnn Croci, Senior Director of Marketing
Barbara Sullivan, Senior Research Analyst
Judy Schultz, Marketing Design Manager
Cindy Panzera, Marketing Designer

GLOBAL PRODUCT SUPPORT CENTER

Nancy Sarlan-Parquette, Sr. Product Marketing Manager

PRODUCTION SERVICES

Greg Morgan, Senior Director, Production Services
Karen Wallace, Senior Director, Advertising Operations
Mike Guerin, Senior Production Specialist
Jami Thompson, Production Coordinator
Veronica Trotto, Advertising Coordinator
Maro Eremyan, Advertising Coordinator

CIRCULATION

Richard Priante, Senior Director of Circulation
Bobbie Cruse, Subscriptions Manager
Mary McIntire, Circulation Marketing Manager

RESEARCH

Ann MacKay, Research Director

DISTRIBUTION

Bob Wescott, Distribution Manager/(508) 879-0700

IDG LIST RENTAL SERVICES

Paul Capone, Account Executive
P.O. Box 9151, Framingham, MA 01701-9151
(800) 343-6474/(508) 370-0825, FAX:(508) 370-0020

SEMINARS, EVENTS AND IDG EXECUTIVE FORUMS

Robin Azar, Vice President of Events
Michele Zarella, Director of Operations
Dale Fisher, Event Planner
Tim DeMeo, Senior Operations Specialist
Kristen Kennedy, Event Coordinator
Sandra Gittlen, Events Editor
Neal Silverman, Senior Director of Event Sales
Andrea D'Amato, Sales Director/Strategic Partnerships
Kristin Ballou-Cianci, Senior Event Sales Manager
Sandy Weill, Sr. Event Sales Manager
Maureen Riley, Event Sales Manager
Judy Tyler, Sales Operations Specialist
Mark Hollister, Senior Director of Event Marketing
Debra Becker, Dir., Marketing & Audience Development
Sara Evangelous, Marketing Manager
Timothy Johnson, Marketing Specialist

ONLINE SERVICES

Alonna Doucette, Vice President, Online Development
Hillary Freeley, Director, Online Operations
Deborah Vozikis, Design Manager Online
Adam Gaffin, Executive Editor, Online
Melissa Shaw, Managing Editor, Online
Jason Meserve, Multimedia Editor
Sheryl Hodge, Online Copy Chief

CUSTOMER ACCESS GROUP

W. Michael Draper, V.P. of Technology & Business Operations
Sharon Stearns, Mgr. Customer Access Operations
Cara Peters, Project Support Specialist

INFORMATION SYSTEMS/BUSINESS SERVICES

W. Michael Draper, V.P. of Technology & Business Operations
Anne Nickinello, Senior Systems Analyst
Puneet Narang, Manager of Database Technologies
Tom Kroon, Senior Software Engineer/Architect
William Zhang, Senior Software Engineer
Rocco Bortone, Senior Network Manager
Peter Hebenstreit, Senior Network/Telecom Engineer
Kevin O'Keefe, Systems Support Manager
Brian Wood, Senior Systems Support Specialist
Frank Coelho, Senior Manager, Business Services
Mark Anderson, Business Services Supervisor
Linda Cavanagh, Business Services Administrator

IDG

Patrick J. McGovern, Chairman of the Board
Pat Kenealy, CEO

Network World is a publication of IDG, the world's largest publisher of computer-related information and the leading provider of information services on information technology. IDG publishes over 275 computer publications in 75 countries. Ninety million people read one or more IDG publications each month. Network World contributes to the IDG News Service, offering the latest on domestic and international computer news.

NetworkWorld

Editorial Index

2Wire 41

A

Addonics 44

Antenna Software 51

Apple 41

AT&T 6, 33

AT&T Wireless 33

Avaya 19

Axcelerant 36

B

Brocade Communications 8

C

Cable & Wireless 1

Cisco 1, 8, 10, 33

D

Dell 19

D-Link Systems 41

E

EarthLink 33

Elron 30

Extended Systems 51

F

Fujitsu Siemens Computers 28

G

Gric Communications 36

I

IBM 19, 25

Internap 36

InterSystems 13

L

Logitech 41, 44

M

Marshal Software 30

MCI 10, 36

MegaPath Networks 36

Microsoft 12, 33, 51

Mindjet 44

Motorola 33

N

NEC 51

NetIQ 30

netVmg 36

O

Oracle 28

Q

Qwest 6

R

Red Hat 10

Research In Motion 51

S

SAP 51

SCO Group 6

Secure Computing 30

Siebel Systems 51

SMC Networks 41

Sockeye Networks 36

Sony Electronics 44

Sony Ericsson Mobile 19

Sugar Media 41

SurfControl 30

Symantec 25, 30

Symbol Technologies 51

T

Telispark 51

TManager 36

Toshiba 44

Tropos Networks 54

V

Vanguard Managed Solutions 1

VeriSign 74

Veritas Software 8

Version 3 25

Viseon 41

VMware 58

W

WebEx Communications 12

WebSense 30

Webwasher 30

Weidenhammer Systems 51

Z

ZixCorp 30

Advertiser Index

Advertiser	Page #	URL
Airespace	76	www.airespace.com/newreviews
American Power Conversion	17	http://promo.apc.com
Avocent	23	www.avocent.com/realty
BMC Software	38-39	www.bmc.com/bsm8
Broadcom Corp	34-35	www.networkworld.broadcom.com/wireless
Buyuptime.com	62	http://promo.buyuptime.com
Continental Computers	68	www.conticomp.com
Cyclades Corp	61	www.cyclades.com/nw
Dell Computer Corp	56-57	www.dell.com/bizsolutions
Dell Computer Corp	15	www.dell.com/MSmigration
Digital V6	62	www.digitalv6.com
Enterasys Networks	32	enterasys.com/nw/n-series
eWan	66	www.ewan1.com
Fluke Networks	67	www.flukenetworks.com/toolguide
Foundry Networks	7	www.foundrynetworks.com/fes
Global Technology Associates	63	www.gta.com
Hewlett Packard	75	www.itworld.com/itwebcast/procurve
IBM Corp	26-27	ibm.com/software/integrate
IBM Corp	31	ibm.com/db2/middleware
IBM Corp	29	ibm.com/websphere/middleware
IBM Corp	2-3	www.ibm.com/shop/m337
Intel Corp	20-21	intel.com/uvwire
MRV Communications Inc	59	mrvc.com/nwdm
Microsoft Corp	48-49	getexchange2003.com
National LAN Exchange	68	www.nle.com
Network Instruments LLC	64, 68	www.networkinstruments.com
Overnight Networks	68	www.overnightnetworks.com
Qualcomm	11	www.qualcomm.com/enterprise7
Quantum Corp	37	www.theanswerisX.com
RIM	24	www.blackberry.com
Rose Electronics	66	www.rose.com
SAP	13	sap.com/usa/affordable
SI Tech	68	www.sitechfiber.com
Securematics	68	www.securematics.com
Server Technology	66	www.servertech.com
Shoreline Communications Inc	9	http://networkworld.goshoreline.com
Spectrum Control	65	www.specpower.com/remote22
Sprint	18	sprint.com/facts
*Sungard	50	www.availability.sungard.com
Terabeam Corp	40	www.terabeam.com
Vircom	67	www.vircom.com

Websense	53	www.websense.com
Western Telematic Inc	64, 65	www.wti.com
XO Communications	4	www.xo.com
Zix Corp	42	www.zixcorp.com/customfit

Network World Fusion - www.nwfusion.com

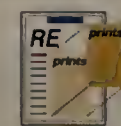
3COM	netVmg
Adtran	Norwich University
Alterpoint	NSI Software
Aspelle	OmniCluster Technologies
Avaya	OpenNetworks
Brocade	Palm, Inc.
Calendra	Permeo
CDW	Proactive Net
Cisco Systems	Qualcomm
Compuware	Quantum NSU
CoSine Communications	Quintum Technologies
Critical Path	Redline Networks
Crucial Technology	RouteScience
Dell	RSA Security
EMC	SeeBeyond
Expand Networks	Seranoe Networks
Expertcity	Siemens
Extreme Networks	Sonexis
Fidelia	Sony Electronics
Fore Scout	Sprint
Freshwater Software	SSH Communications Security
Fujitsu	Stalker Software
Gateway	Statscout Pty Ltd
Heroix	Telogy/Texas Instruments
IBM	TrueSecure
Intel	Tyco Electronics
Internet Security Systems	Valencia Systems
lomega	Verisign
Kentrox	VIEQ, Inc.
Managed Service Partners	Watchguard Technologies
NEC	Wavelink
Neoteris	WebSense
NetIQ	Whale Communications
NetQoS	Winternals Software
Netscreen Technologies	World Data Products
NetSupport	Xythes Software

These indexes are provided as a reader service. Although every effort has been made to make them as complete as possible, the publisher does not assume liability for errors or omissions.

*Indicates Regional Demographic

NetworkWorld SEMINARS & EVENTS

Network World Seminars and Events are one and two day, intensive seminars in cities nationwide covering the latest networking technologies. All of our seminars are also available for customized on site training. For complete and immediate information on our current seminar offerings, call a seminar representative at 800-643-4668, or go to www.nwfusion.com/seminars.



Publicize your press coverage in Network World by ordering reprints of your editorial mentions. Reprints make great marketing material and are available in quantities of 500 and up. To order contact Reprint Management Services at (817) 339-1900 x129 or E-mail: rmhober@reprintbuyer.com

Cisco

continued from page 1

persuasive convergence path for small businesses and branch offices. And by tapping its huge router installed base, the company could wrap up the small/midsize IP PBX market, which currently is wide open. But the technology also raises the familiar question of whether Cisco is cramming too much into its feature-heavy IOS code.

"This could do a lot for a company like us," says Dick Emford, lead network analyst for Newell Rubbermaid of Freeport, Ill., regarding IOS-based routers as a voice platform. The consumer and industrial plastics maker uses Cisco 2600 and 3700 routers to connect hundreds of offices and plants across the country, and is in the process of rolling out VoIP over its WAN.

"For the cost of an IOS upgrade and some extra DRAM, you could go and give yourself a PBX at every branch," Emford says.

Running call-control services on a router is not new to Cisco. Users have been able to add IP PBX functions to Cisco's 1700, 2600 and 3700 series of routers since the release two years ago of IOS Version 12.2 with IOS Telephony Services.

Cisco customers have deployed more than 2,000 live routers with IOS Telephony Services, but Cisco kept the IP PBX features in the background while it developed the product's stability and features.

"We wanted to gain experience, get some customer success and enhance the features" before announcing it as a product, says Mark Monday, director of product

management for Cisco's Multi-service Customer Edge business unit. He adds that there are no plans yet to offer IOS-based call-control features into larger routers, such as the 7500 series.

Along with CallManager Express, Cisco this month also released a blade for its routers that adds a small-office version of its Unity unified voice mail/e-mail software for up to 120 users, giving customers a complete phone and messaging system in one box. CallManager Express uses Cisco's IP phones and Skinny protocol (which provides call-setup features), and can be integrated with its larger CallManager IP PBX servers. CallManager Express licenses range from \$750 to \$2,800, and Unity Express starts at \$2,995.

"The fact that Cisco publicly announced this when it had sort of kept this feature quiet in the past shows that Cisco is much more confident in its ability to provide the telephony," says Brian Riggs, an analyst with Current Analysis.

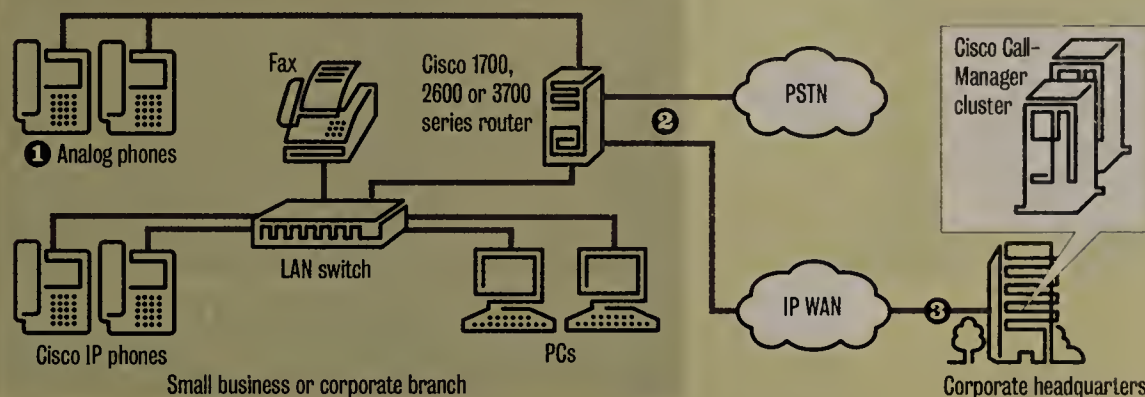
In the past, Cisco has used its leverage with enterprise data-equipment buyers to sell its IP telephony gear. Cisco leads the IP phone market, with half of the 1.4 million IP phones shipped worldwide in 2002 — five times the shipments of its nearest competitors, according to Synergy Research Group. Cisco also had 60% of the \$576 million in last year's worldwide LAN telephony sales (phones, IP PBXs and gateways), Synergy says.

Competition catching up

But some analysts say the competition is catching up, and even beating Cisco in some key segments of the LAN telephony

Cisco's VoIP trump card?

By integrating small-office IP PBX functions into its routers, Cisco is looking to let companies deploy VoIP more easily.



1 Analog phones connect directly to a Cisco router, and IP phones connect via a LAN switch.

2 The router handles all call control — such as call routing and features — as well as public switched telephone network (PSTN) trunking and IP WAN routing.

3 Branch offices can connect to a larger Cisco VoIP network through the WAN.

market.

For example, the telephony research firm Infotech reports that in the small/branch office systems market (40 to 100 users), Cisco had only 11% of the combined IP PBX/IP-enabled PBX line shipments in the second quarter. Cisco still leads all vendors in pure-IP (no TDM technology) and hybrid IP PBX (a mix of TDM and IP switching), with 26% of line shipments in the second quarter. (Avaya was second with 16%, and Nortel was third with 13%).

Meanwhile, deployments in branch offices and small businesses tend to be the norm for IP telephony; the average number of lines deployed last year on an IP/converged PBX was 67, Synergy says.

To address this, Cisco over the last year has tried to offer a small-business VoIP package consisting of scaled-down CallManager servers. This effort has not been successful, as customers have turned to small-office boxes such as Avaya's IP Office, Mitel's ICP and Nortel's BCM, says Frank Stinson, program director at Infotech.

"Cisco is hoping that they've finally got the right combo as far as features and pricing for that market," he adds.

The right VoIP fit

The IT group at clothing retailer Abercrombie and Fitch likes this combination, as the firm is in the process of replacing Panasonic key systems with Cisco 1700 routers and the CallManager Express IOS image in all 644 of its U.S. stores. Each store supports five to 10 IP phones. The router-based IP PBXs in each store are

managed from a centralized Cisco CallManager in the company's headquarters in Columbus, Ohio.

The product was more cost-effective than deploying a Cisco router and some of the small-office IP PBXs the company looked at, such as Nortel's BCM, 3Com's NBX and a SIP-based box from PingTel. The company expects to save \$400 to \$600 per location on IP PBX hardware, phones and software licenses, says Steven Graves, senior manager of network technology for the shopping-mall-based clothier.

"It just made more sense to roll out one box to all the stores after we ran those numbers," he says.

These economics could be devastating to Cisco's competitors, some observers say, as it could potentially use its 70% market share in the access router market to generate new VoIP installs.

"With a software upgrade they can make a router customer into [an IP PBX customer]," says Frank Dzubeck, president of consulting firm Communications Network Architects. "No one else can do that."

Others say CallManager Express does not make the small/midsize enterprise VoIP market less competitive for Cisco.

"Cisco will still face competition from established platforms, such as Alcatel's OmniPCX Office and Avaya's IP Office, which sell for less," writes analyst Steven Blood of Gartner in a recent report on Cisco's IOS-based telephony plans.

"This is not the beginning of the end for traditional small-office vendors, such as Avaya, Nortel and Mitel," Current Analysis' Riggs says. He says the IP PBX functions

on IOS still will come up short for some customers in terms of call features, support and reliability.

Banking on Cisco

One such customer is Citizens' Bank in Flint, Mich., which has Cisco routers in 185 branches throughout the Midwest. The bank uses Siemens HiPath 3500 IP-enabled PBXs to tie together 70 of its offices. Chuck Wasson, vice president of technology, says the Siemens gear offers more features and includes more sophisticated call routing than any IP systems he's seen.

"I've always been wary of Cisco as a telephony provider," Wasson says. And after a complex companywide Cisco IOS and router hardware upgrade that caused some heartburn, he says he'd be hesitant to throw telephony features on top of his WAN boxes.

"Cisco needs to just work on making a few versions of IOS work well," he says.

"They need to cut down the number of IOS versions so your tech isn't trying to figure out the matrix of release versions and features," he adds.

After a scare over the summer when a major flaw in Cisco's software was discovered, users might also want to think twice about putting all their eggs in one IOS basket, others say.

"The fundamental question is, how much do you want to make something into a universal platform?" Dzubeck says, adding that Cisco routers can now do so. "And how willing are you to make something the focal point of failure?" ■



Get more information online.
DocFinder: 8247
www.nwfusion.com

■ **Network World**, 118 Turnpike Road, Southborough, MA 01772-9108, (508) 460-3333.

Periodicals postage paid at Southborough, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #40063800. Network World (ISSN 0887-7661) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 118 Turnpike Road, Southborough, MA 01772-9108.

Network World is distributed free of charge in the U.S. to qualified management or professionals.

To apply for a free subscription, go to www.subscribe.nwfusion.com or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-508-490-6444.

Nonqualified subscribers: \$5.00 a copy, U.S. \$129 a year; Canada \$160.00 (including 7% GST, GST#1266-0952); Central & South America \$15 a year (surface mail); Europe \$205 a year (surface mail); other countries \$300 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication.

Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zeeb Road, Ann Arbor, Mich. 48106.

PHOTOCOPYRIGHTS: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Network World, Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus 50 cents per page is paid to Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970.

POSTMASTER: Send Change of Address to **Network World**, P.O. Box 3090, Northbrook, IL 60065.



Copyright 2003 by Network World, Inc. All rights reserved. Reproduction of material appearing in Network World is forbidden without written permission.

Reprints (minimum 500 copies) and permission to reprint may be purchased from Reprint Management Services at (717) 399-1900 x124 or rtry@rmsreprints.com.

USPS735 730

BackSpin Mark Gibbs



Processes and improbabilities

After last week's column about business-process insanity described through the tale of a Dell customer who had to return a computer to get a sales price on the same machine, reader Mark Mushkin wrote: "It's the sad reality of our big-corporate-big-picture world that

makes this the norm. In corporate terms, how much would it cost to change an internal process vs. [what it cost Dell to take the computer back and ship out another one at the lower price]? My guess is the loss is small potatoes compared with the actual cost of a process change."

Absolutely right. It is always a costly exercise to analyze and re-engineer internal business processes. The philosophy in many organizations is along the lines of if it ain't completely broke, don't even think about fixing it. Or to put that another way, if it is slightly broken, leave it alone.

Now I'm sure that this philosophy seems rational to many people. But the problem with this way of thinking — of ignoring anything that isn't an undeniable disaster — is that disregarded problems are never solitary; they are always part of a constellation of problems.

It is like ignoring a pothole in the road because it isn't big enough to swallow a car. And along with

that, ignoring the fallen tree branch, the dropped bricks and the oil spill. Each is not a disaster in and of itself, but seen as a whole, the road can hardly be considered usable.

And what happens when you have lots of overlooked minor problems is that you can easily find your situation reaches a point where, because of a single event, everything suddenly turns to chaos. A gasoline truck swerves to avoid the branch, skids on the oil, turns over because of the pothole, and the bricks rip the gas tank and boom! The entire street goes up in flames.

Reader Herbert DuPree wrote to point out that, "Dell won't know or care about this because it's presently the exception and not the rule. If they were losing real cash on this ... they would pay attention. It also [needs] to have enough of these complaints to make a difference."

DuPree's point about complaining is interesting. I contend that the explosion of automated corporate telephone and e-mail systems is training us to not complain because they make it so hard to do so and ultimately reward us with no satisfaction.

It is always the same: You have a problem with a product or service so you call the customer service number. After you navigate a score of options, loop around the prompt system a few times, try hitting zero or hash (with no result) in the hope of getting

to a human being, you finally (after the hold from hell) reach a customer service representative only to find that the rep can do nothing helpful and can't pass you on to anyone other than his supervisor, who has an educational level just above kindergarten and the personality of a brick.

As for e-mail customer service and support, what a joke! I have found perhaps a handful of organizations that have any competence when it comes to e-mail support.

Typically any kind of e-mail service or support is simply a huge black hole. I suspect that once your message crosses the messaging event horizon it immediately drops out of the universe and appears as spam in an alternate universe.

Perhaps we get much of our spam the same way — customer service and support messages drop out of other universes into this one and through some strange consequence of quantum physics appear in our mail systems in Earth languages offering body part enlargement or photos of hot mature women. That would certainly explain the bizarre message I got yesterday that appeared to be an ad in Russian for a pizza parlor in Moscow.

Then again, is that more improbable than companies addressing their inefficient business processes?

Answers to backspin@gibbs.com.



'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Plenty found Site Finder

Now we know why VeriSign remains so headstrong about quickly reactivat-

ing Site Finder — its suspended redirection service that appears to have generated little but ill will and bad press for the company.

Turns out Site Finder also generated a boatload of traffic.

In August, VeriSign sites ranked only 135th in terms of overall visitors, according to a monthly accounting of Internet traffic conducted by comScore Media Metrix. This placed VeriSign in the company of sites operated by the National Institutes of Health and the U.S. Department of Education (Nos. 133 and 134); in other words, not exactly your beachfront 'Net real estate.

But that was before Site Finder started ushering alphabetically challenged Web surfers to a VeriSign site for "help" whenever they misspelled or mistyped a .com or .net URL. While VeriSign touts this automatic detour as a public service and pooh-poohs technical complaints about it, competitors, anti-spam vendors and a host of old-time Internet hands have portrayed the gambit as a nakedly commercial power grab.

This much appears beyond dispute: Internet users can't spell, don't know where they're going, or both.

In September, VeriSign rocketed to No. 11 on the survey, nestled right up there with household names such as Amazon (No. 8) and Disney (No. 13). The 30.8 million visitors VeriSign welcomed last month represented more than a fivefold increase over August and dwarfed the monthly gains experienced by any other company. That the bulk arrived there by virtue of twitchy typing might taint the achievement, but as they say of bloop hits in baseball: They all look the same in a box score.

Oh, and that's No. 11 with a bullet: The September gains for VeriSign reflect only about two weeks' worth of Site Finder-generated traffic, as the service

was activated on Sept. 15. A full 30 days would no doubt have floated VeriSign even higher in the ranking — perhaps as high as the rarified air of the Top 5.

We won't be certain about that for a while, of course, because VeriSign pulled Site Finder over into a rest area on Oct. 3.

(Pop quiz: What are the top 5 most-visited companies on the 'Net, according to comScore Media Metrix? ... Answer below.)

There were other interesting tidbits in this traffic report, including the revelation that the number of Internet users in the U.S. now exceeds 150 million. Math isn't my strong suit, but in a country of 290 million or so, that sure looks like more than half. If you consider adults only, we're probably talking two-thirds. Back out the prison population, the comatose and my dad — who needs to get an ATM card before graduating to the Internet — and the number of those online as a percentage of those who might reasonably be expected to be online starts creeping ever closer to 100%.

And, if you like looking at rankings and lists as much as Buzz, you might spot something like this: What on earth can explain the fact that two of the top 30 sites provide information about ... the weather? The Weather Channel and Weatherbug.com attracted 23.6 million and 15.5 million visitors, respectively, in September.

This means that if the two weather sites merged and brought their current traffic along for the ride, the combined company would represent the eighth-most-visited destination on the 'Net; a notch above Amazon.

Keep that in mind the next time you're fuming about your local TV station wasting so much time dissecting every detail about tomorrow's forecast. They know what sells.

Quiz answer: The five companies whose Web sites draw the most visitors are, in descending order: Microsoft, AOL Time Warner, Yahoo, eBay and Google.

Some days I swear my in-box is No. 6, but that's not a complaint. The address is buzz@nww.com.



Demand more from your network.
Without demanding more from your budget.

With HP ProCurve Networking solutions, you can get the secure, mobile, multiservice network you need without having to sacrifice the entire budget to get it. Built on industry standards, the HP ProCurve Switch 5300xl series is engineered to deliver wire-speed 2/3/4 functionality at the price of competitive layer 2 solutions. Our best-selling switches include HP support, software upgrades and our industry-leading lifetime warranty. And with intelligence pushed to the edge of the network, you get the control you need. All of which translates into better return on your IT investment.



HP PROCURVE SWITCH 2626

\$799*

24 10/100 and 2 Gigabit ports
in a 1U form factor
Built-in Gigabit copper with fiber flexibility
Basic IP routing
Lifetime warranty**



HP PROCURVE SWITCH 5372xl

\$7,129*

76.8 Gbps wire-speed switch fabric
48 Mpps throughput
Layer 3 IP routing
802.1x port-based security
HP-patented switch meshing
Lifetime warranty**



Learn more about HP ProCurve Networking solutions around security, mobility and convergence. Sign on to our Web-cast series at www.itworld.com/itwebcast/procurve.



Guglielmo Marconi's team had it right, so does Airespace. Enterprise Wireless LANs are good to go.

Airespace believes your wireless network should work as well as your wired network. This means it should be as secure, as reliable, and as business-critical as Ethernet.

To date, most Wireless LANs could not even come close to the performance of wired networks, even with an army of RF engineers. With Airespace, the RF engineer comes in the system.

With an Airespace WLAN system you can have complete visibility of all traffic on your network; add users on to the system and load balance them; determine unauthorized users and turn them off; and make a high quality Voice over IP call.

Wireless LAN reviewers and industry experts also have it right with such recent acknowledgement in 2003 as: Network Computing's Editor's Choice Award; NetworkWorld's World Class Award for Wireless LAN switches; and InfoWorld's Reader's Choice – on list of top 5 wireless products of the year.

Airespace is the standard in Wireless LANs. The experts agree.

For more information on Airespace product reviews see www.airespace.com/newreviews.



www.airespace.com